ALSO IN OUR NEWS SECTION ■ A preview of what attendees will see at this week's Storage Networking World in Phoenix. PAGE 6
■ Corporate users concerned about liability tap tools to prevent illegal P2P file-sharing. PAGE 10

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APRIL 5, 2004 ■ VOL. 38 ■ NO. 14 ■ $5/COPY

John Moon, CIO at Baxter International Inc., helps his company Web-enable its new medical devices.

ANDY GOODWIN

THE

Wide-Ranging CIO

The savviest CIOs are venturing far from the data center and playing a role in various non-IT realms, such as analyzing acquisition targets, re-engineering business processes, developing new products and even going on sales calls. **PAGE 31**

NEWSPAPER

Users Cautiously Optimistic About Sun-Microsoft Accord

Welcome improved collaboration, integration promised with settlement of legal disputes

BY PATRICK THIBODEAU AND TODD R. WEISS

Users on Friday were guarded but hopeful about Sun Microsystems Inc. CEO Scott McNealy's decision to settle his company's long-running legal battle with Microsoft Corp., ostensibly ending years of contention and ushering in a new era of cooperation to foster interoperability.

The announcement was a stunning turnabout for McNealy, who was until very recently prone to stingingly refer to Microsoft as a "convicted monopolist." But in the end, McNealy, who initiated the discussions with Microsoft CEO Steve Ballmer to cease the corporate hostilities, said he had heard from too many customers who told him pointedly to "cut the rhetoric, Scott, [and] go get interoperable."

YOUR TAKE?
Join our online discussion forum and weigh in on the Sun-Microsoft agreement: QuickLink a4210

But many users won't be ready to applaud until they get answers to questions about how Sun and Microsoft will improve integration of their server, database, directory, identity management and other products.

"It's good that there is going to be an era of coopera-

Sun-Microsoft, page 6

More IT Jobs to Go Offshore, Controversial ITAA Report Says

Concludes that U.S. economy will benefit from growing trend

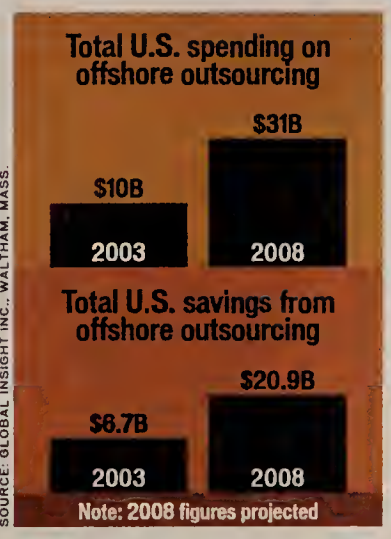
BY PATRICK THIBODEAU
WASHINGTON

More IT jobs will be created offshore than onshore over the next five years, but the overall U.S. economy will get a boost from the cost savings that offshore outsourcing yields.

That's the conclusion of a controversial report released last week by the Information Technology Association of America, a high-tech trade group that's lobbying Congress in favor of offshoring. The firm that conducted the research on behalf of the ITAA, Waltham, Mass.-based Global Insight Inc., found that while wages and jobs will increase in the economy overall, the outlook for IT workers may be less positive.

"Some workers may have to take a job that pays less than their [current jobs]," and some IT workers will face "wage compression" as a result of overseas competition, said Nariman Behravesh, chief economist at Global Insight.

ITAA Report, page 13



SOURCE: GLOBAL INSIGHT INC., WALTHAM, MASS.

RFID Tests Wal-Mart Suppliers

BY CAROL SLIWA AND BOB BREWIN

Wal-Mart Stores Inc. last week confirmed that some of its 18 pharmaceutical suppliers didn't meet a March 31 deadline to put radio frequency identification tags on warehouse packs of Class II narcotics.

Wal-Mart said it now expects all the companies to comply by June 30. But the missed deadline highlights the challenges that all suppliers face as they try to adopt RFID tech-

RFID, page 45

INSIDE
Drug companies deal with Wal-Mart's first deadline. Page 45

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CONTENTS

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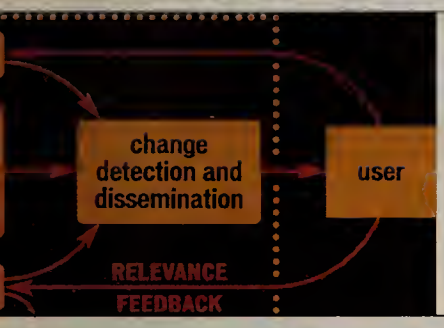

FUTURE WATCH

Search for Tomorrow

In this week's Technology section: Researchers are building search engines that will serve up results based on your interests and priorities and that will get better the more you use them. **Page 26**

Winning the Name Game

Also in this week's Technology section: New software tools and services are helping companies monitor their reputations on the Web. **Page 19**

NEWS

6 **Interoperability within SANs** is a must for any new products, say IT managers in anticipation of this week's Storage Networking World show.

7 **Supply chain tools** help a ladder maker deal with the loss of its Home Depot sales channel.

7 **IBM eases licensing** of its Power architecture in order to advance systems integration.

8 **Gateway enters** the networking equipment market.

10 **Companies crack down** on peer-to-peer file-sharing on their networks.

10 **BMC's performance** management software helps a health care network save $850,000 on a mainframe upgrade.

11 **Wage inflation** isn't expected to deter interest in offshoring to India anytime soon.

11 **Use of IT contract** workers will climb this year, but slowly.

12 **Best Buy investigates** outsourcing its IT and call center operations.

12 **Fortify Software** launches tools for security testing during application development.

13 **SAS releases** a software upgrade that could make it easier for users of data marts to manage the analysis tools.

15 **IBM appears confident** that it will prevail in its court dispute with SCO.

TECHNOLOGY

22 **Data Finds a Place on the Grid.** Vendor support is just beginning to emerge and standards are still evolving, but interest is growing in grid technology as a way to share data within an enterprise and outside it.

28 **Security Manager's Journal: Cheap Scanning Comes at a Price.** Using free Nessus software for port scans saves money, but shortcomings in the application's reporting and management capabilities send Mathias Thurman looking for alternatives.

MANAGEMENT

31 **The Wide-Ranging CIO.** Corporate IT budgets may be flat overall and technology expenditures more heavily scrutinized than ever, but there's no question that the CIO's role and influence are expanding well beyond the traditional boundaries of IT.

34 **Think Tank: Brain Food for IT Executives.** At a time when corporations are increasingly reliant on IT, boardrooms are lacking in technical knowledge and experience, says a study by Burson-Marsteller. Plus, we take our monthly look at the IT economy.

36 **Career Watch.** We look at outsourcing's impact on IT jobs, find that Cisco experts are more likely to get raises and learn that retaining key workers matters most at private, fast-growth companies.

OPINIONS

8 **On the Mark: Mark Hall** reports that outsourcers say their labor-cost advantage may be only temporary.

16 **Maryfran Johnson** is happy to see CIOs breaking out of their traditional roles in IT to work on strategic projects in business development, compliance and other vital functions.

16 **Pimm Fox** notes that there are ways to protect customers' credit card information, but they need to be used.

17 **Michael Gartenberg** thinks three troubled fronts could converge to wreak havoc for Microsoft.

30 **Paul A. Strassmann** cautions about making outsourcing decisions when you can't see the value chain from the competitor's point of view.

37 **Paul Glen** observes that tech smarts, education and bossiness aren't good predictors of IT leadership success. Flexibility and the ability to communicate are more important.

46 **Frankly Speaking: Frank Hayes** says the ITAA hopes its bedtime story of a jobs report will give IT workers sweet dreams. But it's more likely to cause nightmares.

DEPARTMENTS/RESOURCES

News Briefs 8, 12
Letters 17
IT Careers 39
Company Index 44
How to Contact CW 44
Shark Tank 46

ONLINE

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IT On Board

DEFENSE/AEROSPACE: *Computerworld*'s Dan Verton gets a close-up look inside the U.S. Navy's latest experimental ship, the HSV 2 Swift, and its next-generation shipboard IT capabilities. See photos from his tour.
QuickLink a4180

Is Offshoring a Threat to Privacy?

OPINION: Jay Cline says U.S. companies should be verifying data security at all contractor sites, whether they're in Bombay or Peoria. **QuickLink 45902**

Keys to Great IT Security Operations

SECURITY: In the first part of a two-part series, Tripwire CTO Gene Kim analyzes three crucial management practices common to high-performing security and IT operations.
QuickLink 44142

How to Hire Members of A Collaborative Team

DEVELOPMENT: Columnist Esther Derby offers tips on what to look for when adding staffers to a cross-functional, self-organizing group. **QuickLink 45901**

Protect Your Network Against VPN-Introduced Threats

NETWORKING: Virtual private networks can be a pathway for attack if remote systems aren't properly secured. Two Avanade consultants outline one method of defense.
QuickLink 45952

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QuickLink a1510

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QuickLink a1430

Knowledge Centers
QuickLink a2570

The Online Store
QuickLink a2420

IT Execs Seek Links Between SAN Devices

Vendors tout new products, but IT managers say interoperability is a must

BY LUCAS MEARIAN

THIS WEEK'S Storage Networking World Spring 2004 conference will showcase new products from companies like Microsoft Corp. and Snap Appliance Inc. But several users said last week that vendors need to make sure that the technology they develop can work in multivendor storage-area networks (SAN).

"Whatever you give me with information life-cycle management and all this other stuff that's coming down the pipe, don't introduce any of this at the expense of these other things that I've come to depend on in my storage infrastructure," said Laurence Whittaker, supervisor of enterprise storage management at Hudson's Bay Co. in Toronto. Whittaker said he needs to be able to do reliable data backup and recovery.

Interoperability Thorn

Rick Bauer, CIO at The Hill School in Pottstown, Pa., said that although his IT staffers have become more comfortable with storage networking technologies, it's more critical than ever to prove the business case for storage investments to top administrators at the prep school.

"A lot of this stuff in the past got deployed as an IT initiative. . . . Given the costs, Sarbanes-Oxley and HIPAA, it's becoming more of a strategic discussion," he said, referring to regulatory record-keeping requirements.

Bauer added that a smooth-running IT infrastructure depends on tools that can be used to provision and manage storage on an enterprisewide basis. But a lack of interoperability and tight integration between competing storage devices on SANs remains a thorn in his side.

Vendors said they're trying to address such concerns. For example, the Storage Networking Industry Association today will announce at the conference a list of vendors whose products have passed a conformance-testing program designed to validate compliance with the Storage Management Initiative Specification. The specification was designed to let storage management tools control devices from different vendors.

The SNIA and *Computerworld* are jointly sponsoring Storage Networking World,

> **"Don't introduce any of this at the expense of these other things that I've come to depend on in my storage infrastructure.**
>
> **LAURENCE WHITTAKER**, SUPERVISOR OF ENTERPRISE STORAGE MANAGEMENT, HUDSON'S BAY CO.

which starts today in Phoenix. The SNIA also plans to announce that its Object-based Storage Device specification has completed the American National Standards Institute's T10 letter ballot process.

The OSD specification is meant to support a new class of shared storage systems based on an architecture of data objects — containers that house both application data and an extensible set of storage attributes.

Microsoft is due to announce that its Windows Storage Server 2003 operating system will now allow users to store Exchange messaging files on network-attached storage (NAS) devices. Most of the storage vendors that resell the software are expected to make the Exchange feature available within 60 to 90 days, according to Marcus Schmidt, a storage product manager at Microsoft.

San Jose-based Snap Appliance is rolling out Version 3.0 of its GuardianOS software with new capabilities that will let the company's users store block-level data on its NAS boxes for the first time. Jim Sherhart, product manager for enterprise systems at Snap, said the upgraded software uses the Internet SCSI protocol to create logical disks within its file system.

Snap also plans to announce a NAS device that scales from 5TB to 29TB, nearly 10 times its previous maximum capacity of 3TB. The Snap Server 15000 starts at $34,990 and lists at $185,000 for a fully provisioned model. **45914**

MORE ONLINE

EMC Corp. has modified its Clariion disk arrays to emulate tape libraries:

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Continued from page 1

Sun-Microsoft

tion, but what does it really mean to people?" said Satish Ajmani, CIO of the Santa Clara County government in California. "What are they going to deliver that's different from what we have today, and will it result in an overall cost reduction for us?"

"That's potentially interesting news, and I would be borderline happy," said Daniel Morreale, CIO at the North Bronx Healthcare Network in New York. But first, he said, "I want to see something concrete and real happen."

But if the announcement lives up to its claims, Morreale said information sharing between his Sun and Windows systems might improve. "Long term, it should make my life a little easier, and certainly my systems administrators' lives a little easier," he said.

Richard Teasdale, a Unix administrator and second vice president at General Reinsurance Services Corp. in Trumbull, Conn., was also cautious with his praise. "Until I know more details about it, I don't see any real pluses or minuses for us," Teasdale said. "I don't know if this is a sign that [Microsoft] wants to do more in the Unix and Linux spaces. That could be good for us."

Sun's decision to end the dispute with Microsoft is in fact the latest in a series of moves the company has taken to broaden its reach beyond its Unix system. The company has strengthened its x86 low-end server line, embraced Linux and adopted the Opteron processor from Advanced Micro Devices Inc.

MORREALE: "I want to see something concrete and real."

"When things aren't going well, you have to look for ways to make changes," said Tom Murphy, an analyst at Meta Group Inc. in Stamford, Conn.

And things certainly haven't been going well for Sun. The company last week said it would cut its workforce by 3,300 employees after reporting a net loss for the quarter that ended March 28.

Microsoft is paying Sun $700 million to resolve its antitrust issues and $900 million to settle patent disputes. For users, one source of cost savings may be the end to the dispute over Microsoft's use of the Java Virtual Machine. Microsoft had been planning to end support of its JVM in September as part of an earlier settlement, and users would have faced the cost of switching to Sun's JVM.

Under the agreement announced Friday, the companies will also share communications protocols, set Windows certifications for Sun servers, and improve technical integration between Java and .Net.

Benefit Analysis

Rudy Ebisch, assistant technical support director at printer and copier vendor Canon USA Inc. in Lake Success, N.Y., said he wants to know what Microsoft Chairman Bill Gates gets out of the deal.

"What can he get from Sun that he can use?" Ebisch said. "I don't get it."

For customers who found themselves in the middle of the Sun-Microsoft battle, the settlement and technical information-sharing agreements have the potential of making it "easier for organizations that have both Windows and Solaris to build cooperative computing solutions," said Dan Kusnetzky, an analyst at research firm IDC.

George Weiss, an analyst at Gartner Inc. in Stamford, Conn., said the agreement may help Sun get past the view among some users that Solaris is "the central focus of all their major strategies."

"It's really the development environment that is crucial," said Weiss. "The users want the cheapest hardware."

Sun also announced on Friday that Jonathan Schwartz, who headed Sun's software business, had been promoted to president and chief operating officer. McNealy, who had held the president title, remains chairman and CEO. **45957**

MORE ONLINE

For additional details on the agreement, visit our Web site:

QuickLink a4220
www.computerworld.com

Ladder Maker Uses Supply Chain Tools to Climb Out of Sales Hole

Software helps ramp down production after shipments to Home Depot end

BY MARC L. SONGINI
CHICAGO

In February, Werner Co. stopped shipping its ladders to The Home Depot Inc. The home improvement retailer was Werner's biggest customer, but the company was able to cushion the blow thanks to its production planning and reporting system.

Werner used the system to quickly ramp down production on its assembly lines and avoid purchases of excess stock while it phased out deliveries to Home Depot, a process that began last November, said David Conn, Werner's director of corporate logistics. Conn and another executive from the Greenville, Pa.-based ladder-maker spoke at last week's Supply-Chain World North America 2004 conference here.

The production and distribution planning system "helped immensely when Werner made the difficult decision to exit the Home Depot business," Conn said. He added that the move came after Home Depot increased its sourcing of ladders from overseas manufacturers. Werner initially bid on the remaining business but then decided that it "did not support our corporate goals," Conn said.

Werner's system is based on demand-forecasting and distribution-planning applications developed by BT Smith and Associates in Butler, Pa. Production and demand data is extracted from the applications and imported into Microsoft Access and Excel spreadsheets for end users.

The system helps Werner create what-if scenarios as well as production schedules, Conn said. The production plans are then fed into its manufacturing execution system, which currently includes a mix of applications developed by Mapics Inc. and J.D. Edwards & Co.

During the Home Depot phaseout, production planners and business managers at Werner were also able to use the system to prevent any service disruptions to Werner's other customers, Conn said.

"We thought ladders were safe from [competition coming from] over the ocean," said Bill Rippin, vice president of supply chain at Werner. "If we didn't have this stuff, it would have been a more difficult time."

Werner is a privately held company that had revenue of $538 million last year. Conn didn't say how much Werner reduced its costs because of the technology while phasing out shipments to Home Depot. But he said that without it, Werner wouldn't have been able to do things such as decide which production lines to take offline or how to shift manufacturing and distribution responsibilities among facilities.

Various iterations of the production planning system have been in place for the past six years. It was originally built without a corporate mandate as the skunk works brainchild of an informal group consisting of Conn and two other employees from different parts of the company.

The technology cost for the system only amounted to five figures, Conn said, declining to be more specific. When work on the system began, each of Werner's business units "had its own agenda," he said. "Early in this project, we bridged the silos."

But because there was no formal structure for the supply chain work, the most significant progress didn't occur until 2001, Conn said. That year, Werner saw business improvements such as a doubling of its annual finished-goods inventory turns. "While we did achieve good things, we could have done it a lot quicker," he noted. **45940**

> **If we didn't have this stuff, it would have been a more difficult time.**
>
> **BILL RIPPIN**, VICE PRESIDENT OF SUPPLY CHAIN, WERNER CO.

MORE ONLINE
Conference attendees talk about the challenges of supply chain projects:
QuickLink 45959
www.computerworld.com

DAN VERTON

Revolutionary IT Advances Surface on New Navy Vessel

THE U.S. NAVY has a new ship in its fleet that officers say may be the most technologically advanced vessel produced to date, with IT capabilities that are revolutionizing naval warfare and may play a vital role in military responses to potential terrorist attacks in the U.S.

There are only 42 sailors in the crew of the HSV (High Speed Vessel) 2 *Swift*, a 294-foot, aluminum-hulled catamaran. But the ship's extreme levels of automation make up for the lack of manpower.

Nearly every function of the ship, from navigation and steering to engine and damage control, is conducted and monitored using commercial, off-the-shelf hardware and software.

Computerworld reporter Dan Verton went aboard the *Swift* last week and filed an exclusive photo journal on the vessel's cutting-edge IT systems. You can see his report on our Web site at **QuickLink a4180.**

IBM to Ease Licensing Of Its Power Architecture

Strategy aimed at better integration

BY PATRICK THIBODEAU
NEW YORK

IBM last week outlined a plan to facilitate third-party licensing of its Power architecture as a means of advancing integration of a broad range of systems, from small devices to large servers.

Company officials said the ability to integrate a variety of products is of more concern to corporate users than chip performance benchmarks. "Integration eclipses gigahertz," said Bernie Meyerson, chief technologist in IBM's semiconductor division.

Brian Perlstein, systems architect for infrastructure at Oakwood Healthcare System in Dearborn, Mich., said he's unclear about the extent to which IBM's Power-based integration strategy will extend to medical devices. But if the approach enables the removal of middleware between a device and a server, "that would be really advantageous for us" because it would remove a potential point of failure, he said.

The move to expand the Power architecture to a wider range of systems may give companies the confidence they need to make long-term investments in Power products, said Richard Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. "This is not a doomed architecture," he said.

The Power chip is used in high-end Unix and iSeries (formerly AS/400) servers, technical workstations, embedded devices and Apple Computer Inc.'s Macintosh systems. By lowering the barriers to licensing, IBM may attract more designers and vendors and improve chip support, said Shane Rau, an analyst at research firm IDC.

Community Model

IBM is comparing the "community model" approach it's adopting for the Power architecture with that associated with the Linux operating system, which it sees as key for third parties adopting the Power architecture. But company officials stressed that IBM is not moving away from its AIX version of Unix.

"We are continuing to invest heavily in AIX for customers," said Adalio Sanchez, general manager of IBM pSeries servers. "We are absolutely committed to AIX." **45939**

BRIEFS

McDonald's Signs Deal for IT Support

McDonald's Corp. plans to outsource management of the IT infrastructure that supports its North American operations to Affiliated Computer Services Inc. Dallas-based ACS said the seven-year contract includes the fast food chain's mainframes, servers, end-user systems and help desks. ACS valued the deal at $219 million. An undisclosed number of IT workers will transfer from McDonald's to ACS.

IBM Buys Candle, Adds System Tools

IBM said it has agreed to buy Candle Corp., a vendor of tools for managing mainframes and other servers, for an undisclosed price. IBM's Tivoli Software unit already sells mainframe management tools, but the company said it's committed to supporting El Segundo, Calif.-based Candle's Omegamon product line. The acquisition is expected to be completed by midyear, IBM said.

Via E-mail, Gates Gives Security Plan

Bill Gates, Microsoft Corp.'s chairman, sent a group of users who subscribe to an e-mail list a 3,500-word message that detailed the company's plan to better secure its software. Gates also noted that Microsoft will begin a series of regional security training events this week. The company had already announced most of the initiatives.

Microsoft Expands VoIP in Win CE 5.0

Microsoft also said its upcoming Windows CE 5.0 operating system will provide expanded voice-over-IP capabilities, including VoIP support for dual-mode cellular and wireless LAN devices. In addition, Microsoft today will announce the formation of an RFID vendor council.

MARK HALL ▪ ON THE MARK

Offshore Outsourcers Claim Low-Cost . . .

. . . advantage is merely temporary. "It's not about competing on price," suggests Prime Joseph, chief operating officer of Allserve Systems Corp. Allserve is based in New Brunswick, N.J., but most of its 3,200 employees work in India. He says **what attracts IT to his company is the quality** of its workers, the number and kind of college degrees they hold and their years in the field. Bob Evans, the Palo Alto, Calif.-based CEO of Symphony Services Corp., which has global headquarters in Bangalore, India, is in full agreement. "If all we have is a cost-structure differential, the business is doomed," he says. Evans adds that "the meaningful **wage gap" will continue only for another four or five years** because of salary hikes in Bangalore and deflation of contractor prices in the U.S. Joseph adds that later this month, his company will open a call center in the U.S. because the business reasons for having one closer to customers now outweigh the narrowing wage difference. But Mark Hebert, executive vice president of marketing and alliances at Fremont, Calif.-based Sierra Atlantic Inc., which has 450 workers in India out of 525, still touts price as the key reason to offshore projects. Throwing a project over the wall to his Indian troops will enable clients to immediately cut costs by half, he says. And Hebert claims that by about the third project, when most of the project management wrinkles have been ironed out, IT development in India "will deliver a 3-to-1 cost advantage" over the U.S. Indeed, Julie Hanna Farris, CEO of Scalix Corp. in San Mateo, Calif., says this month her start-up will shift a significant amount of its software development to India because "within three years, we'll save seven figures." No small amount for a company getting off the ground. Hebert argues that companies such as Scalix would have outsourced the work anyway and probably wouldn't have hired any local employees. Add it up, he acknowledges, and **"outsourcing reduces the number of consulting jobs in the U.S.** and the billing rates." ▪ Symphony and Sierra Atlantic target IT vendors in Silicon Valley as well as corporate IT managers for work. Both Evans and Hebert emphasize the importance for start-up companies to push work overseas, suggesting that **venture capitalists like to see offshore development** as part of their business plans. "VCs will fund start-ups who have some amount of offshore work being done," Hebert says. Maybe in Silicon Valley VCs think that way, but in Washington, where Core Capital Partners is based, they have different ideas. **"I'm not seeing any start-ups pressured** to have development done overseas," says Pascal Luck, the high-tech VC's managing director. "Cost per man-hour is less, but you have to figure out the efficiency of having two operations," he advises. In addition, Luck worries about a start-up **willing "to move its crown jewels overseas."** He says he wants his investment "to keep control over its intellectual property." Sending it abroad just doesn't seem like the right control strategy to him. ▪ A VC-funded company in Bath, England, is opening its doors in the U.S. Duncan Pauly, founder and chief technology officer of CopperEye Ltd., has just hired Kate Mitchell as CEO, to be based in San Francisco. The reason? This is where most of the **appallingly slow data warehouses** are located. Why are they so slow? Because data warehouse developers don't distinguish between static and dynamic data, thus bogging down the relational database. Pauly classifies static data as one-time, unchangeable events such as clickstream data from Web visitors. Dynamic data is what belongs in a warehouse. The CopperEye Software Development Kit lets developers separate static from dynamic data so that the data warehouse's relational database has to churn just the important stuff, calling in static data only when required. A new version now in beta makes it easier for business analysts and database administrators to do chores now handled by programmers. Pricing starts at $50,000 per CPU. ▪ A new release of real-time data analysis software from Webplan Inc. in Ottawa will be available later this quarter. RapidResponse 7.3 **answers what-if queries on live data feeds** from multiple applications such as ERP and CRM programs. The upgrade is fully 64-bit and features increased financial analysis capabilities and new tools to quantify results from engineering change orders anywhere in the development or production cycle. Pricing starts at $250,000. **45907**

Fax Wizard

Captaris Inc. in Bellevue, Wash., this month will ship a workflow wizard for its RightFax application. The new module, which costs $3,000, lets users bind incoming and outgoing faxes to a business process such as those from supply chain partners.

Gateway Enters Networking Market

BY MATT HAMBLEN

Expanding its efforts to reach IT managers, Gateway Inc. tomorrow plans to announce that it's entering the corporate networking equipment market with a line of wireless access points and low-end LAN switches.

The company will offer nine switches ranging from $79 to $799 and two access points priced at $299 and $399, primarily for midsize businesses, said Chad McDonald, manager of Poway, Calif.-based Gateway's networking division.

One of Gateway's goals is to give corporate users a well-rounded product offering, said McDonald. The company already sells servers to businesses but has had to refer customers who want switches to other vendors, he said.

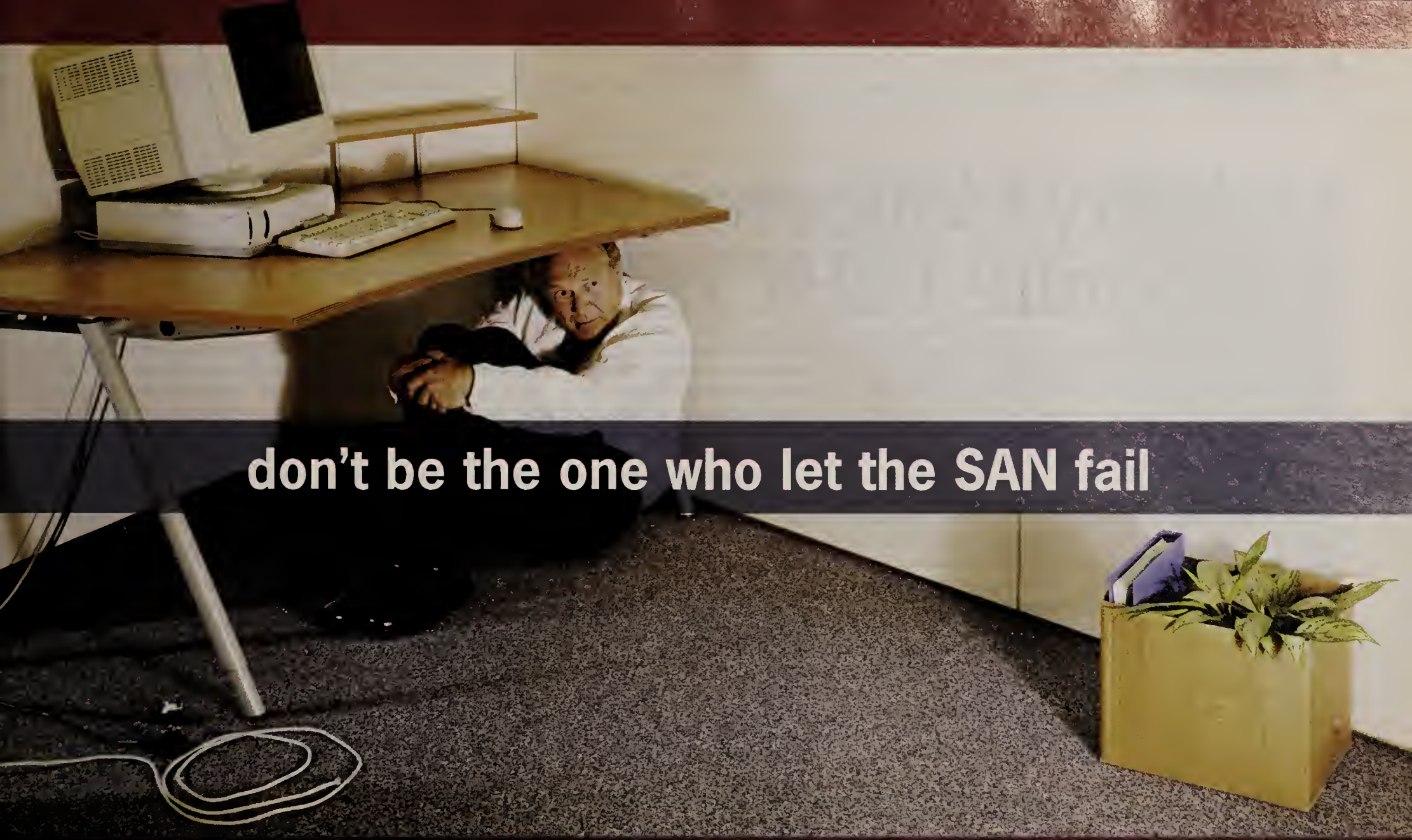
The new products will butt heads with offerings from Dell Inc., which started selling switches in September 2001.

"These are definitely rock-bottom prices," said Maximilian Flisi, an analyst at research firm IDC. But he added that Gateway will primarily offer the networking gear to complement its servers, PCs and storage devices.

"They aren't going to gain new customers by doing this, and if they expect to do so, well, good luck to them," Flisi said. He noted that Dell makes a "miniscule" amount of revenue from its switching line.

More than half of Gateway's total revenue of $3.4 billion for last year came from sales of corporate-oriented products and services, said company spokesman Ted Ladd.

Separately, Gateway last week announced plans to close its 188 company-owed retail stores as of this Friday, laying off about 2,500 workers as part of the move. The company said it will seek wider retail distribution of its consumer products. **45938**



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Liability Concerns Prompt Corporate P2P Crackdown

Firms guarding against suits related to illegal music-sharing on their networks

BY JAIKUMAR VIJAYAN

THE ONGOING worldwide crackdown on illegal online music-sharing is highlighting the need for companies to detect and shut down unauthorized peer-to-peer activities on their networks.

Last week, the International Federation of the Phonographic Industry launched criminal cases against scores of individuals for illegally sharing copyrighted music on P2P networks in Canada, Germany, Italy and Denmark. The IFPI's action follows a similar campaign by the Recording Industry Association of America (RIAA), which on March 23 initiated a fresh round of legal actions against more than 500 computer users for illegal music-sharing.

So far, nearly all of the lawsuits have involved individuals on university networks or commercial Internet service provider (ISP) networks. But as early as October 2002, the RIAA informed CEOs at hundreds of large companies of the significant legal liability they face under federal copyright law if music, movies and other copyrighted works are pirated using their networks.

Liability Concerns

Some organizations seem to be taking that message seriously.

"We are concerned about the liability issues," said Steven Annese, IT manager at Sara Lee Coffee & Tea North America, a Harrison, N.Y.-based division of Sara Lee/DE of the Netherlands.

The company has installed software from San Diego-based Websense Inc. to help it detect and automatically shut down any P2P application that a user might attempt to launch on its corporate network. The software also allows Sara Lee to block employee access to P2P Web sites, including some of the newer ones that mask the origin of the IP address and encrypt the traffic.

Sara Lee made the move after discovering several employees running P2P software such as Kazaa and Morpheus on its networks, Annese said.

Terra Nova Trading LLC made a similar move after finding employees using P2P applications. The Chicago-based financial services firm began using software similar to that from Websense to sniff out and stop P2P applications from launching on all trader and back-end systems. Terra Nova installed the software to protect itself from liability for copyright infringements and because P2P applications waste a tremendous amount of bandwidth, said Kevin Ott, vice president of technology at Terra Nova.

As a financial trader, "we live and die by the amount of bandwidth we have," Ott said.

The University of Wisconsin in Madison, meanwhile, is using "network shaping" technology to prioritize network traffic, with P2P sharing being given a lower priority than other types of traffic, said Kim Milford, the university's information security manager.

"Sharing files via P2P technologies takes longer, [thereby] reducing the incentive to use it," she said.

Since the RIAA's crackdown began, First Internet Inc., an ISP in St. Clairsville, Ohio, has been sending notices to its customers warning them about the consequences of illegal file-sharing. Since then, the company has been monitoring its networks "for any large and consistent increases in P2P activity," said Mike Tindor, the company's vice president of network operations.

"If we receive a copyright infringement warning, we typically provide the customer with the notification and a copy of our policy, and we provide them with suggested methods to reduce any risk to themselves," Tindor said.

45937

P2P Patrol

Vendors providing software to prevent illegal file-sharing on corporate networks include:

- **Websense:** Tools for blocking access to P2P sites, shutting down P2P sessions and preventing P2P applications from running on corporate systems.
- **Packeteer Inc.:** Bandwidth management software that can be used to control and choke the amount of bandwidth that's consumed by P2P applications.
- **FaceTime Communications Inc.:** Software that inspects all packets that flow in and out of a corporate network, looking for specific P2P markers.

LEARNING LESSONS

IT managers can get some P2P-fighting tips from their university campus counterparts:

QuickLink 43111
www.computerworld.com

Health System Uses BMC Tools To Cut Mainframe Upgrade Costs

BY MATT HAMBLEN

After using performance management software to improve batch-processing times for accounting and other functions, the WakeMed Health Network last week said it will be able to upgrade to a new mainframe this month for $850,000 less than it originally expected.

The not-for-profit health care company operates eight medical facilities that rely on an IBM mainframe and 240 distributed servers, all of which are managed with products from BMC Software Inc., said WakeMed CIO Steven Riney.

Raleigh, N.C.-based WakeMed has invested about $2 million in BMC's software since 2000, and it began to fully implement the technology when Riney joined the company in mid-2001. He said he thinks WakeMed has already gotten a return on its initial investment, especially because critical servers that support patient and emergency care have much less downtime than before.

RINEY: "Two years ago, our IT systems were sick. . . . We're well now."

"Two years ago, our IT systems were sick," Riney said. "The perception by staff was that systems were always down. We're well now. We have fewer people standing in line" with trouble reports.

Riney hasn't performed a formal ROI calculation except in two areas involving WakeMed's mainframe, which is monitored by BMC's Mainview Predict tool. WakeMed also uses BMC's Patrol for Unix Perform and Predict software to track about 40 Unix servers that are tied to the mainframe.

Both products were used to improve CPU performance at a time when overnight batch processing of accounting data was taking 15 hours to run, pushing into the next workday, Riney said. After the software helped show where the delays were occurring, WakeMed cut the time it takes to run the batch processes by about half late last year. That makes it possible to distribute billing information a day earlier, which is expected to save the company $600,000 annually, according to Riney.

Because of the increased CPU efficiency, WakeMed's new mainframe won't need as much processing power as the one it has now. That will reduce both hardware and software costs for the new system, Riney added. The tab will total $1 million, compared with an original cost estimate of $1.85 million, he said.

WakeMed uses about 75 different BMC products, including tools that monitor individual servers and notify support technicians when they exceed set resource usage levels, Riney said.

With management software, "it's always hard to prove ROI," said Jean-Pierre Garbani, an analyst at Forrester Research Inc. Garbani said he believes Riney's cost-avoidance calculation on the new mainframe but noted that the batch process time improvement "sounds spectacular."

Nonetheless, Garbani credits WakeMed for its ability to use the systems management software to coordinate its entire IT infrastructure. "It's one thing to have a bunch of information on systems and another thing to understand it," he said.

Riney said it took months for WakeMed's IT staff to properly tune management alerts on the company's servers so that technicians could be notified when repairs and fixes were necessary.

"We've learned that management software tools are complex, and there's no way around it," Riney said.

45942

Wage Inflation Unlikely to Soon End India's Offshore Dominance

Benefits are still too attractive to unseat it as outsourcing leader, experts say

BY THOMAS HOFFMAN AND PATRICK THIBODEAU

When U.S. companies look to move IT activities overseas to reduce costs, the labor savings in India are typically compelling enough to keep them from shopping around for IT skills in places like China or Eastern Europe.

And even though wages for IT workers in India are expected to rise by double-digit rates annually over the next several years, few IT sourcing experts expect to see a massive shift in investment dollars to other countries in the foreseeable future.

One reason why U.S. companies will continue to prefer India is the depth of its labor pool, which stems from the eagerness of its citizens to obtain technical training.

"In most of urban India, a computer programmer is exalted somewhat, like being a doctor is in the United States," said Christopher Fisher, head of corporate IT strategic planning at Hong Kong-based Techtronics Industries Co. "Everyone wants his son or daughter to become a programmer someday."

Fisher said he's impressed by the financial sacrifices that Indian families are willing to make to ensure that their children get a good education. "[This] emphasis on education really struck me," he said. "It reminded me what [the U.S.] used to be about."

Wage pressure exists overseas for people with hard-to-find specialized skills such as ERP and program management, said Gordon Corbon, executive vice president and chief financial officer at offshore outsourcer Cognizant Technology Solutions Corp. in Teaneck, N.J. The company can make up for skills shortages in India by using U.S. workers, who make up 30% of its 10,000-person workforce, he added.

Gradual Migration

Outsourcing experts don't expect to see demand shift away from India anytime soon. Instead, "there will be a general migration of work to other countries as India gets its dance card filled," said Joan Conway, director of managed services at Fujitsu Consulting in Calgary, Alberta.

And that will likely take a while. According to the National Association of Software and Service Companies, an IT industry group in India, there are approximately 290,000 engineering degrees being awarded annually in India, with the majority of those workers entering IT fields.

Eugene M. Kublanov, vice president of corporate development at NeoIT Inc., a San Ramon, Calif.-based offshore outsourcing consultancy, said salary levels for Indian programmers are expected to double by the year 2010, based on a 13% compound annual growth rate. Meanwhile, programmers in China are typically paid 20% to 30% less than those in India, and a growing number of North American companies are looking to China for client/server and Java development skills, Conway said.

But it will be years before countries like China are able to overcome language barriers and produce a sufficiently mature set of IT workers to draw a significant amount of work away from India, said analysts.

Techtronics' Fisher said language and cultural issues in China make it hard to fill job openings there. "While the Chinese definitely have focus and immense talent, the barriers are much higher for them," he said. 45936

Unequal Pay

Average salary for programmers:

COUNTRY	SALARY
Brazil	$12,500
Canada	$37,500
China	$7,550
Czech Rep.	$12,350
Hungary	$10,500
India	$7,500
Ireland	$24,500
Israel	$29,150
Malaysia	$10,750
Mexico	$20,500
Philippines	$8,700
Poland	$8,100
Romania	$7,700
Russia	$10,000
Singapore	$30,950
South Africa	$18,000
U.S.	$65,000
Vietnam	$3,475

SOURCE: NEOIT INC., SAN RAMON, CALIF.

Demand for IT Contractors Rising Slowly

BY THOMAS HOFFMAN

As corporate revenue growth steadily improves this year, spending on new or backlogged IT projects is also expected to increase.

But with IT staffs running lean following three consecutive years of cost cutting, many companies will look to domestic IT contractors to help supplement their project teams, IT executives and analysts said last week.

"We're seeing a little bit of an uptick in demand for contract labor," said Tom Pohlmann, an analyst at Forrester Research Inc. in Cambridge, Mass. Pohlmann cited a December 2003 survey of 364 North American IT decision-makers conducted by Forrester that found that 52% of respondents plan to use a combination of internal training and IT contractors to help make up for a shortfall in IT skills this year. Only 22% of the respondents said they plan to increase their internal IT staffs this year.

Still, U.S. companies appear to remain tentative about launching into new project spending as they await further signs of an economic recovery.

For instance, Digerati Solutions LLC, a Babylon, N.Y.-based systems integrator, has noticed a rise in interest in new projects, but that hasn't yet translated into new orders, said Dan Hoffman, the company's president.

"People are more encouraged about the economy, but they're not knocking down doors yet," said Hoffman.

How will you make up for your shortfall of IT skill sets in 2004?

BASE: 364 North American decision-makers citing missing IT skill sets.
Percentages don't total 100 because of rounding.

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

Lack of Urgency

Carl Schulz, a principal at Delta Corporate Services Inc., an IT consultancy in Parsippany, N.J., concurred, noting that the lack of urgency to start new projects — along with the increasing use of lower-cost offshore labor — has led to continued downward pressure on IT contractor fees.

PGA Tour Inc. in Ponte Vedra Beach, Fla., is planning to increase its domestic IT contract spending in two areas this year. The professional golf association will tap contractors to support IT infrastructure improvements and to help develop and implement a digital-asset management system for managing more than 35,000 hours of archival video footage, said Steve Evans, vice president of information systems.

To help make upgrades to its servers, networks, desktops and operating systems, the PGA Tour has brought in eight contract workers for a 13-week period and is planning to retain four of them for an additional 13 weeks, said Evans.

Because of its continued revenue growth, GE Real Estate in Stamford, Conn., hasn't reduced its IT investments or IT staffing levels for the past four years, said CIO Hank Zupnick. Still, the company plans to continue to use contract workers to help supplement its own IT staff for large projects, he said. This includes the use of six full-time and two part-time Java contractors to help with the development of a new property management system, Zupnick said. 45934

BRIEFS

Deputy CIO at DHS Resigns From Post

Laura Callahan, deputy CIO at the U.S. Department of Homeland Security, resigned on March 26, a DHS spokeswoman said last week. Callahan had been on paid administrative leave since June, when questions surfaced about her academic qualifications.

Intel Pays $225M To End Patent Suit

Intel Corp. will pay Intergraph Corp. $225 million to settle a patent dispute, the companies said last week. The settlement grants Intel a license for Intergraph's parallel instruction computing technology. Also, Madison, Ala.-based Intergraph said it has withdrawn charges against Dell Inc. in a related patent dispute.

Cisco Warns Users About Hacking Tool

Cisco Systems Inc. last week warned users about the public release of computer code that exploits security vulnerabilities in Cisco products. The program could allow hackers to compromise Catalyst switches or machines running the Internetwork Operating System, the company said. [For more information, go online: QuickLink 45832.]

Unisys Mainframe Allows Pay-Per-Use

Unisys Corp. last week introduced a new line of ClearPath mainframe servers, one of which will be available with a pay-per-use pricing model that will cut costs by 20% to 30%, the company said. The ClearPath Plus Libra 500 line includes one midrange system based on Intel's Gallatin multiprocessor Xeon chip, plus two systems that will support either Xeon processors or the Unisys MCP CMOS processor. One of those two is being offered on a pay-per-use basis, but Unisys declined to disclose pricing.

Best Buy Considers IT Outsourcing Options

May hand over IT, call center operations as it follows path of other major retailers

BY CAROL SLIWA

BEST BUY CO. may join the collection of retailers that are opting to outsource a significant portion of their IT operations to major technology services companies.

The Richfield, Minn.-based retail chain last week confirmed that it has been investigating outsourcing options for the company's IT and call center operations.

"We're always looking for new ways to increase our efficiency and operations, so there are ongoing discussions with potential vendors, none of which we can identify at this point," said Dawn Bryant, a spokeswoman for Best Buy. "There has been no letter of intent, much less a contract signed to date."

But it's possible the decision either has been made or is imminent. One retail industry insider, who asked not to be identified, said a Best Buy IT executive informed him that the company plans to outsource IT.

The Wall Street Journal recently reported that an internal Best Buy memo indicated that Accenture Ltd. is preparing to assume management of some of the company's IT services and telephone call centers by June 1. The memo stated that Best Buy anticipates that a significant percentage of IT associates will be offered positions with Accenture, according to the *Journal*.

> **"[Retailers are] going to take a look at the things that do not give them a competitive advantage, whether that be telecommunications, networking, maintenance.**
>
> **DAVID HOGAN**, SENIOR VICE PRESIDENT, NATIONAL RETAIL FEDERATION

That's what happened at Target Corp., a Minneapolis-based neighbor of Best Buy, when it signed a major outsourcing deal with IBM Global Services five years ago.

Sears, Roebuck and Co. is currently negotiating with Computer Sciences Corp. on an IT outsourcing deal that's expected to be worth about $2 billion over the next 10 years [QuickLink 45543]. The deal, under which CSC would manage much of the IT infrastructure at Sears, is expected to affect about 260 of the retailer's 1,160 IT workers.

But Sears said it expects CSC to hire "substantially all" of the affected staffers. Gary Kelly, CIO at Sears, said earlier this year that companies that acquire an outsourcing contract usually hire some portion of the customer's IT workers.

Kelly said he expects the outsourcing deal to benefit Sears by heightening "the stability and reliability" of the company's infrastructure and reducing the cost of future IT improvements.

David Hogan, a senior vice president at the National Retail Federation in Washington, said the outsourcing trend among retailers is prevalent. "They're going to take a look at the things that do not give them a competitive advantage, whether that be telecommunications, networking, maintenance," Hogan said. Best Buy currently employs a mix of about 800 in-house employees and a fluctuating number of contract workers in its IT department, Bryant noted.

Best Buy CIO Marc Gordon last month announced his resignation. Although the company plans to replace him, the job responsibilities may change, Bryant said. **45930**

Fortify Launches Tools for Security Testing During App Development

Product suite helps companies find and fix code flaws

BY JAIKUMAR VIJAYAN

Security experts have long maintained that secure coding practices make for secure business applications.

To that end, Fortify Software Inc. in Menlo Park, Calif., this week will join a small group of vendors offering tools designed to help companies identify and fix flaws in the application development stage.

Fortify's Source Code Analysis product suite includes a developer's tool kit, a source-code analysis server, an auditing tool and security functions aimed at helping companies unearth and fix flaws in C/C++ and Java code-based application development. The goal is to give companies a way to discover flaws in code that could lead to threats such as buffer overflows, format string errors and SQL injection exploits, said Mike Armistead, a co-founder of the company.

Analysis Feature

The suite also includes a runtime analysis component that allows security workers to launch a variety of attacks against new applications before they are deployed.

Fortify's software is "compelling because it addresses the root cause of today's escalating attacks — the vulnerabilities in the software itself," said Chuck Geiger, chief technology officer at PayPal Inc., an early adopter of the product.

NEW PRODUCTS

Fortify Source Code Analysis

Fortify Developer Toolkit: Provides source-code analysis at the developer's desktop. Price: $3,500

Fortify Source Code Analysis Server: Uses 540 secure coding rules to detect flaws. Price: $50,000

Unlike manual audits and code reviews that are time-consuming and limited in scope, an automated approach accelerates the ability to deliver secure software, according to Geiger.

"We now have the ability to run security checks at a frequency we desire, and against as much of the code base as we desire," he said.

Other vendors offering such software include Sanctum Inc. in Santa Clara, Calif., which sells automated testing tools that enable quality assurance and audit staff to test Web applications for security defects before they're deployed.

The software allows quality testers to create customized scripts for testing, comparing and validating potential security defects in applications. SPI Dynamics Inc., KaVaDo Inc. and Cenzic Inc. offer similar tools. **45935**

SAS Upgrade Offers New Tools for IT

Aims to ease management of data marts

BY CRAIG STEDMAN
CARY, N.C.

IT managers and SAS users don't always see eye to eye. But SAS Institute Inc. last week released an upgrade of its data analysis software that includes new features designed to make it easier for IT departments to set up and centrally manage data marts for users of the tools.

The SAS 9 software became available almost exactly a year to the day from when the company detailed its plans for the upgrade, saying then that the new version would be ready by the end of 2003 [QuickLink 37503]. SAS 9 also adds other enhancements, such as multithreading support to boost performance and less-complex user interfaces aimed at making the software more accessible to users who aren't statisticians or data mining experts.

Catalina Marketing Corp., a marketing services company in St. Petersburg, Fla., has had small groups of SAS users for 10 years or so. But Catalina increased its commitment to SAS about 15 months ago and hopes to use the software to consolidate a large portion of the business intelligence point products that are now used within the company, said Kelly Carrigan, its senior director of database architecture.

"SAS lets you consolidate, but it requires that IT folks and the advanced users work together," he said. "There has to be mutual respect for each other's contributions."

To foster cooperation and coordination between IT and the data analysts and data mining specialists who currently use the SAS tools, Catalina set up an internal SAS user group that meets biweekly. The company also created an intranet site with a set of FAQs about the SAS applications and ran a "SAS education boot camp" for a group of about 20 IT staffers and end users, Carrigan said. The boot camp involved 10 days of training classes over a three-month period, with help from a SAS instructor, he added.

For IT managers, the upgrade provides improved data cleansing tools and a common metadata repository for ensuring that information is consistent across different systems. The new Web-based user interfaces also let IT departments support the software in thin-client mode, SAS said.

In the past, SAS was often adopted by power users "who wanted access to data and often circumvented IT" to get at the information they needed, said Wayne Eckerson, an analyst at The Data Warehousing Institute in Seattle. But SAS 9 looks to be a more IT-friendly offering, Eckerson said.

> **"SAS lets you consolidate, but it requires that IT folks and the advanced users work together. There has to be mutual respect.**
>
> **KELLY CARRIGAN**, SENIOR DIRECTOR OF DATABASE ARCHITECTURE, CATALINA MARKETING CORP.

Michael DeMatteo, manager of market intelligence and planning at KeySpan Corp. in Brooklyn, N.Y., said his group of SAS users is in contact on a daily basis with the gas utility's IT department. IT staffers maintain a set of data marts for the marketing analysts, a big improvement from the days when the SAS users "collected 'shoebox' data sets that someone stuck on a disk," said Michael Augustine, a senior analyst at KeySpan. The marketing analysts can make changes to the data marts as long as they notify IT, DeMatteo noted.

"If you don't have that communication going back and forth, [a SAS installation] is going to be a failure," he said. "There's no doubt in my mind."

Prasanna Dhore, executive vice president of marketing, e-commerce and CRM at Dreyfus Service Corp., said the New York-based mutual funds firm has a clear division of labor on its SAS setup: IT extracts information into data marts, and statisticians focus on analyzing it. "There's no stepping on toes," Dhore said. "I mean, I can make a good cup of coffee. But is that a good use of my time?"

Dreyfus also wants to make sure that the data analysts are working with information that comes from its central data warehouse, Dhore added. "That's the only corporate memory we have, and if you have renegade systems here or there, how can you control those things?" **45904**

More Data Analysis News

BUSINESS OBJECTS SA this week will ship upgraded integration tools, with added data-cleansing capabilities and the ability to store Crystal Reports documents in data marts for detailed analysis.

GENALYTICS INC. this week plans to announce an upgrade of its business analysis software, which is aimed at the financial services, telecommunications and insurance industries.

INFORMATION BUILDERS INC. last week announced a Web-based query and reporting tool designed for end users who aren't data analysis specialists.

READ MORE ONLINE

SAS hopes to use SAS 9 to compete head-on with business intelligence vendors like Business Objects and Cognos:
QuickLink 45897
www.computerworld.com

Continued from page 1

ITAA Report

But the report's conclusion in support of offshore outsourcing drew much skepticism. Richard Ellis, the principal researcher on an IT workforce report completed for the Commission on Professionals in Science and Technology last fall, said the Arlington, Va.-based ITAA "has been a consistent mouthpiece for the industry" and its studies "have a consistent tendency to reach predictable conclusions."

John Steadman, president of the Institute of Electrical and Electronics Engineers–USA, said the report assumes that the savings from offshore outsourcing will be used to create new jobs in the U.S. And it's "not absolutely clear that will happen," he said, adding that companies can "invest overseas, and the new jobs get created elsewhere and do not help U.S. workers."

The economists who conducted the research said history has demonstrated that free trade raises the standard of living in the U.S.

Lawrence Klein, one of the report's authors and a 1980 Nobel Laureate in economics, said that when the U.S. stopped making TV sets, "people thought that was a disaster." But those workers moved on to other jobs, he said.

"The American way has always been to move to higher value-added," meaning better-paying work, Klein said.

The economy will experience more growth with offshore development than without it, the report concludes. IT employment will grow over the next five years, adding 516,000 jobs in the software and services sector. But 272,000 of those jobs will go offshore, with 244,000 remaining in the U.S.

White-Collar Losses

The offshoring of high-paying white-collar jobs has raised particular concern. When overseas manufacturing led to the loss of textile jobs, there was a shift in the U.S. to more productive, higher-paying jobs, according to Lee Price, research director at the Washington-based Economic Policy Institute. But "the opposite is happening [with] computer software offshoring," he said.

"This trend to offshore productive jobs in the U.S. economy is making us less productive and not stimulating the economy," said Price. "We are giving up some of the most productive jobs in our economy."

Gauging the impact of offshore development on IT wages in the U.S. can be difficult in view of the economic downturn. Bob Moore, a Los Angeles-based high-tech recruiter, said programming jobs that were paying $90,000 to $I00,000 before the downturn are now paying $70,000 to $80,000. But he said it's unclear how much of that should be attributed to the weak economy vs. offshoring.

Nate Viall, a Des Moines-based recruiter who specializes in finding candidates for IBM iSeries application development, said in his latest quarterly study, which was released last week, salaries for managers in that niche were up 4.4% from 2003. The average salary was $89,200.

He said these developers have fared well because they specialize in a system that's in wide use with small and mid-size businesses that aren't doing a lot of offshoring.

But Viall expressed concern that displaced workers may be inclined to retrain for iSeries development and in turn drive down wages for his recruits. "It could have that potential," he said. **45933**

Gluecode Customizes Open-Source Apps

BY TODD R. WEISS

Gluecode Software last week announced a business automation server package that it's positioning as an open-source alternative to proprietary enterprise portal products such as IBM's WebSphere.

Gluecode Enterprise Server 3.5 combines business process management, security management and an enterprise portal in an integrated suite, using open-source applications from the Apache Software Foundation. Pricing starts at $4,000 per month, regardless of the number of servers or users.

Los Angeles-based Gluecode takes the base Apache applications, creates connecting code to customize them based on user requirements and sells the bundle in a package that includes support and a software warranty.

> **"The vendor can be held accountable for nonbelievers."**
>
> **ZACH ROTH,** BUSINESS MANAGER, AT&T WIRELESS

Apache open-source projects include the Apache Web server; the Jetspeed enterprise information portal; Cocoon, a component-based Web development framework; and Ant, a Java-based building tool. There are also open-source Apache projects under way for Web services, component programming, and enterprise mail and news servers.

Mike Hogarth, an assistant professor at the School of Medicine at the University of California, Davis, and a lead informaticist at its Center for Biophotonics, is using Gluecode's Advanced Server application in a test environment to replace a custom portal application created by the school in 1997. The old application had become a "maintenance nightmare," he said, and instead of reworking it, Hogarth decided to try Gluecode. "It was built exactly the way I would want to build my next one," he said.

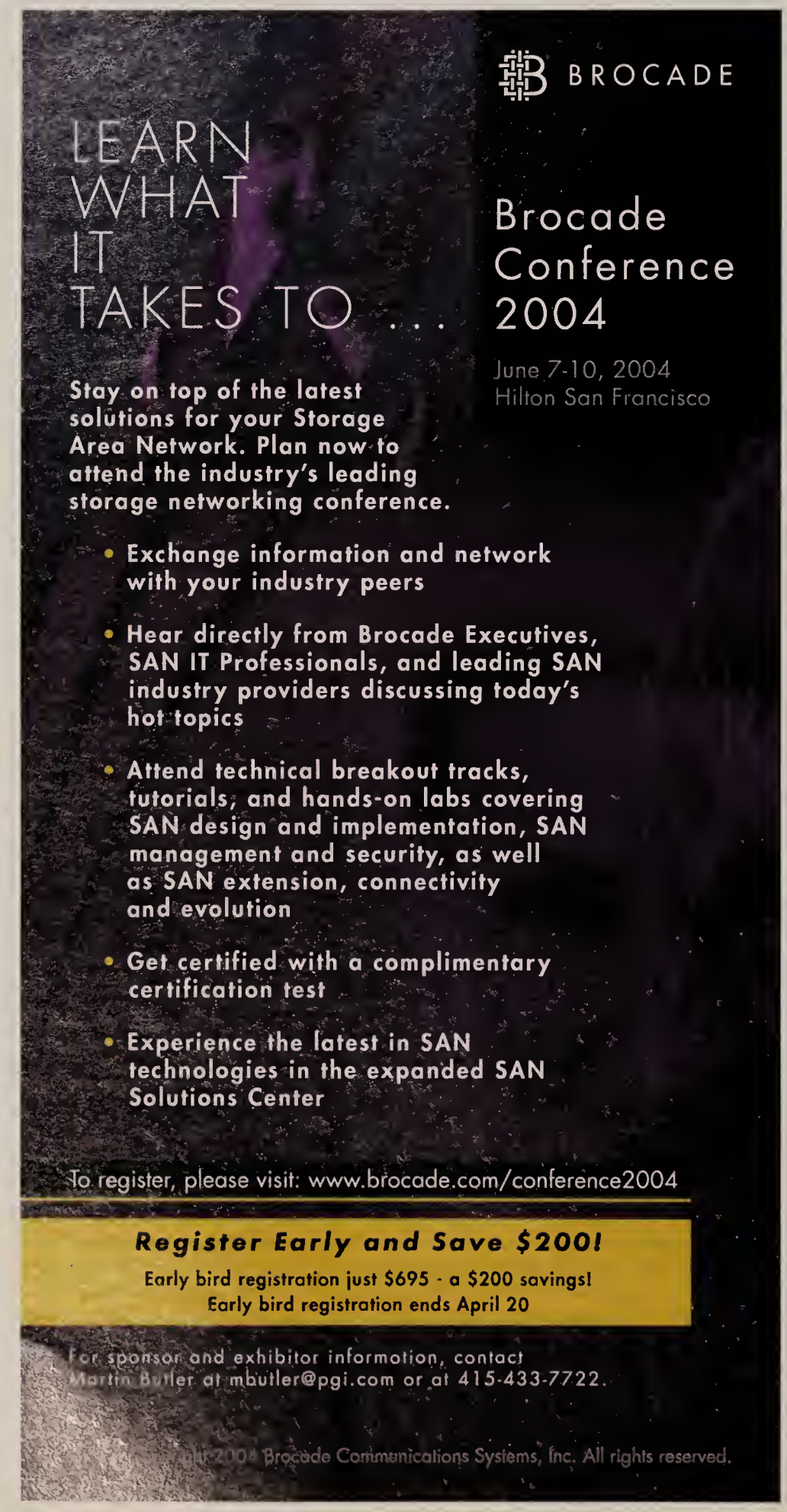
Proprietary portals would have had "feature overkill" and been too pricey for his 4,500 users, Hogarth said.

Zach Roth, a business manager at AT&T Wireless Services Inc. in Redmond, Wash., said he's evaluating Gluecode's portal and business process management engine to automate some first-tier internal support in his department.

"Open-source hasn't been well received throughout the enterprise traditionally," Roth said. "Those battles are still being fought.

"Out of the box, [most open-source applications] are not going to meet your needs 100%," he said, adding that with Gluecode's model, "the vendor can be held accountable for nonbelievers."

Greg Stein, chairman of the Apache Software Foundation, said his group encourages companies like Gluecode to take open-source applications and use them to create their own products. "We're very supportive of it," he said. "That's totally fine. That's our basic philosophy." **45861**



Gates Suggests 2006 for Longhorn

Release of alpha version expected later this year

BY JORIS EVERS

Microsoft Corp. Chairman Bill Gates last week suggested 2006 as the release year for the next version of Windows, code-named Longhorn.

Speaking at Gartner Inc.'s Symposium/ITxpo event in San Diego, Gates stopped short of actually setting a deadline for Longhorn but said industry speculation that the operating system will come out in 2006 is "probably valid."

Gates also said that Microsoft will release an alpha version of Longhorn later this year. He didn't mention the first beta version, which Microsoft previously said it would deliver in 2004. A beta is further along in the software development cycle than an alpha. "We will have an alpha release out this year that everybody can look at," Gates said.

A Microsoft spokesman said the alpha version will be made available to software developers, but exactly how the company will distribute the software is yet to be decided.

At its Windows Engineering Hardware Conference last May, Microsoft said it would deliver Longhorn in 2005, but it later backed away from that commitment. Company executives have since declined to specify a release year for Longhorn, which Gates called a "big breakthrough release" for Microsoft.

Gates cautioned that the schedule for Longhorn is fluid. "Longhorn is not a date-driven release," he said. There are a lot of technological "must haves" for Longhorn, and those could hold back a release if they aren't completed on time, Gates added.

Software developers have already had a first look at Longhorn. Microsoft released a special preview version of the software at its Professional Developers Conference last October [QuickLink 42413]. **45860**

Evers writes for the IDG News Service.

IBM Seeks Knockout Blow in SCO Case

Appears confident of no infringement

BY ROBERT McMILLAN

A recent court filing by IBM demonstrates the company's growing conviction that it will prevail in its legal dispute with The SCO Group Inc., according to lawyers following the case.

In an amended counterclaim to SCO's lawsuit filed March 26, IBM asked the U.S. District Court for the District of Utah to enter a declaratory judgment in its favor. IBM asked the court to rule that it hasn't infringed on SCO's copyright and hasn't breached its contractual obligations to SCO. The filing further asks the court to rule that Lindon, Utah-based SCO, which was at one time a Linux vendor, can't impose restrictions on the software that it previously distributed under Linux's open-source software license.

By seeking a declaratory judgment, IBM appears to be indicating that it has conducted an internal analysis of SCO's claims and found them to be without merit, said Jeff Norman, an intellectual property partner at Chicago-based law firm Kirkland & Ellis LLP. A judge could issue a judgment as soon as the discovery process is over and before the case goes to trial.

"It just means that they didn't find any smoking gun. If they had found something really bad, they probably would have gone to SCO and talked settlement," Norman said.

It would be typical in a case like this for IBM to conduct an internal investigation to determine whether any of SCO's claims were true, Norman said. Such an investigation would involve interviewing and reviewing e-mail and code contributions from IBM's Linux programmers, he added.

IBM has over 7,500 employees involved in various aspects of its Linux efforts, including more than 600 developers who work in the company's Linux Technology Center.

Jeffrey Neuberger, a partner at Brown Raysman Millstein Felder & Steiner LLP in New York, said he agrees that the filing appears to show growing confidence on the part of IBM.

"They're saying to the judge, 'We don't know what SCO is talking about; there is no infringement,' " he said. "They must feel very comfortable that there's no infringement."

Because IBM's filing seeks the broad judgment that IBM hasn't infringed on "any valid or enforceable copyright owned by SCO," a declaratory judgment in its favor would prevent SCO from bringing up new copyright claims later in the trial and would have a devastating impact on SCO's case, Neuberger said.

"If the judge comes out and says there is no copyright infringement, then essentially there is nothing else to fight over. It would be the knockout blow to SCO's case," he said. How much longer IBM and SCO will continue with the discovery stage of the case remains unclear. In a complicated case, the discovery process can last for years, Neuberger said.

IBM and SCO declined to comment on the court filing.

45876

ONLINE ARCHIVE

To access past coverage of the SCO/IBM legal battles, visit our Web site:

QuickLink a3260
www.computerworld.com

McMillan writes for the IDG News Service.

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MARYFRAN JOHNSON

Show of Hands

RAISE YOUR HAND if you're tired of the perpetual debate about how important the CIO role is to the business. (I'm picturing a veritable sea of hands out there.) I know I'm beyond bored with discussions about who's got a "seat at the table" and who doesn't. I don't care if the CIO reports to the chief executive or to the CFO. And I've lost all interest in whether the top IT exec rose up through the programmer ranks or hopped a cubicle wall from the business side.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at **maryfran_johnson@computerworld.com.**

What's far more interesting are the ramifications of the expanding responsibilities of CIOs and other IT leaders. Across many industries, they're playing key roles in business process analysis, change management, regulatory compliance, product development and business project management. The evidence is mostly anecdotal, but it's a lot more compelling — and believable — than some survey or analyst report.

Today's CIO is just as likely to be involved in merger and acquisition discussions and new-product development meetings as the CFO or COO, says John Moon, CIO at Baxter International and one of the executives profiled in our story "The Wide-Ranging CIO" (page 31, and at QuickLink 45635). National correspondent Julia King talked with some two-dozen CIOs and found a lot of them wandering outside the traditional boundaries of IT.

For example, at $13 billion Humana, CIO Bruce Goodman steps into a sales role when pitching investment analysts about IT's enabling role in the changing health care business. At The Burlington Northern and Santa Fe Railway, CIO Jeff Campbell is helping to re-engineer how the railroad moves freight across 33,000 miles of track. In the future, he predicts, "IT leaders will be well-respected, well-grounded business people who happen to have a second discipline called technology."

This shift in roles and responsibilities isn't limited to CIOs at large enterprises, either. Even at smaller companies like *Computerworld* (which is a business unit within $2.3 billion parent company IDG), our CIO, Rick Broughton, runs the IT operation, sits on corporatewide technology committees and serves as vice president of our fastest-growing business, *Computerworld.com*. He even copes quite graciously with a user base of high-maintenance journalists.

"The role of CIOs and other IT executives is changing (or should be changing) in many organizations to reflect our increasing reliance upon digital information for business purposes and for transactions that have profound legal and regulatory ramifications," say Randolph Kahn and Barclay T. Blair in their new book, *Information Nation: Seven Keys to Information Management Compliance* (AIIM, 2004). They argue convincingly that the job of managing information has irrevocably changed, sitting as it does now at the confluence of law, technology and business practices.

Whatever their backgrounds, it's clear that top IT execs must juggle more complex, diverse and highly scrutinized tasks than any other corporate officers in history. Their roles now touch suppliers, customers and relationships across multiple corporate functions. For some, this will end up as multitasking run amok, spinning off pieces of the CIO job as it becomes too much for one person to handle. We've already seen the rise of chief information security officers and the resurgence of chief privacy officers. Up next will surely be chief process officers and chief compliance officers.

Raise your hand if you're ready to rise to the occasion. **45893**

PIMM FOX

Security's Weakest Link

A RECENTLY REPORTED security breach involving BJ's Wholesale Club Inc. has the Natick, Mass.-based retailer working with credit card companies to figure out just how many of its 8 million members had their credit card information compromised [QuickLink 45612].

The company says it has ruled out a centralized security breach.

So, what might have happened?

Mike Higgins, an adjunct professor in the graduate information security management program at George Washington University in Washington, says that whenever data is moved from a Web application server to a processing server, there's a chance that a flaw could allow someone to gain access to the raw data.

PIMM FOX is a London-based journalist. Contact him at **pimmfox@pacbell.net.**

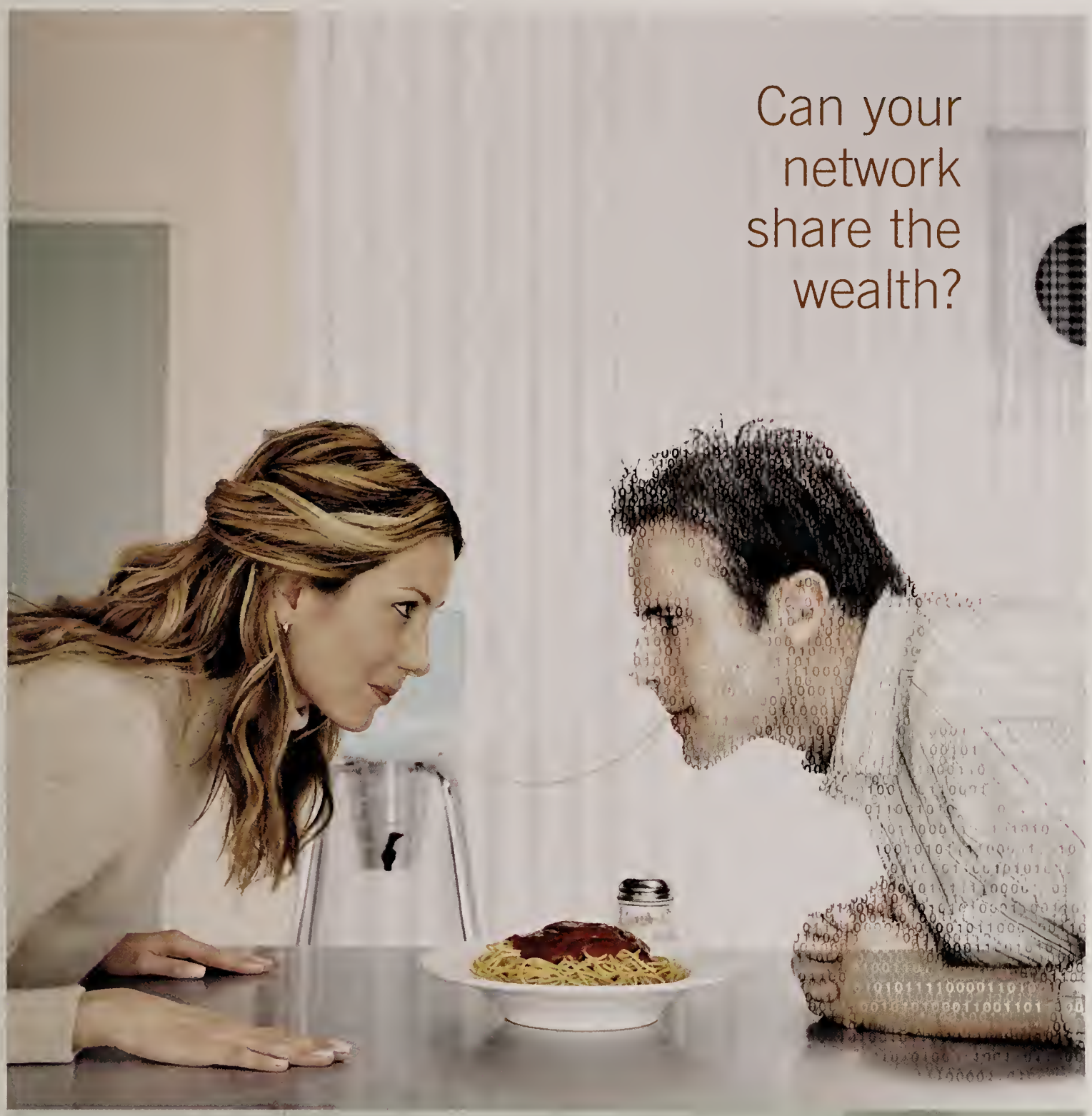
The process involves scanning for the first four digits of credit cards (a limited sample, since those digits identify the issuer), and presto: You start downloading the names and numbers of hapless consumers. Depending on how often the processing server does its job, the numbers could be held in there for minutes or hours.

Higgins, who has also worked for the Defense Department, says that when a transaction takes place, the data could be handled in two ways. "The least desirable is when the application server opens an avenue or connection with the processing server," he says.

Call that a connection from the outside to the inside.

The preferable transaction method is from the inside to the outside. In this case, the processing server makes a query to the application server using a Secure Sockets Layer handshake or some proprietary technology.

Usually this involves a database application, since it's processing the query and then moving it to the back-end channel. This can involve all or part of the data.



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- According to Forrester Research, AT&T is the best in the VPN business with a future-proof global VPN architecture. — Choosing The Right VPN, Forrester Research, Inc., March 2003
- IDC Rated AT&T top of all U.S. IP VPN managed carriers for market share and market leadership.

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So once the query has been moved to the back-end channel, your customer might receive an e-mail confirmation along with real-time order processing.

Straightforward, right?

But when did you last test the efficacy of the transaction process? Just enter a wrong credit card number and monitor how long it takes a customer service rep to alert you that the information is incorrect.

Visa International has come up with another technology solution to the problem of credit card number exposure. Its IT division, Inovant LLC in San Francisco, has tackled the potential for credit card hacking with a secure real-time architecture. The technology is a requirement for Visa merchants.

And it's easy to check who's in compliance.

If only the last four digits of a credit card number are visible on a receipt, then the merchant is using the secure system. Cash-register companies have developed compliant registers, and there's an analog fail-over to make a secure connection if the primary one fails.

So there's no excuse for a large company to be putting customers' credit card information at risk. The solutions exist, but they need to be used. **45825**

MICHAEL GARTENBERG

Perfect Storm Brewing for Microsoft?

THERE'S NO DOUBT in anyone's mind that Microsoft firmly controls the PC desktop market for business and consumer users, but a potential perfect storm is brewing. It could allow competitors to turn the tide against the software maker for the first time if Microsoft doesn't take action.

This storm could result from the convergence of three troubled fronts. First, Microsoft's next-generation Windows product, code-named Longhorn, isn't due for release until 2006 by the most optimistic projections, and some Microsoft watchers put it as late as 2008. That means the company will have gone at least five years without a major release of its flagship product, the one that brings in the cash.

Microsoft touts Longhorn as revolutionary and says it will make Windows XP look as pale as Windows XP made Windows 98 look. All well and good, except for one thing: A good deal of the market never made the leap to Windows XP. That's amazing when you consider that Windows XP is probably the best operating system Microsoft has ever released, whereas Windows 98 was one of the worst. That stall in the market — a large number of customers holding on to old operating systems such as Windows 95, 98, NT and 2000 — is combining with the delays for Longhorn to put Microsoft at potential risk.

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A stalled user base is perilous, especially when users are sticking with a product as poor as Windows 98. That means they're saddled with lousy performance, unreliable systems and unsecured ones as well. The second troubled front that Microsoft faces concerns a market that's starting to look for alternatives.

For example, 30% of 349 small and midsize business users recently surveyed by Jupiter Research said they are looking at Linux on the desktop. While most of those businesses can't make the economic leap to migrate today, that situation could change over a short period of time. As interest from users grows, so does interest from OEMs and independent software vendors, creating a positive feedback loop that could be damaging for Microsoft.

So, why is Microsoft in this position? It's not about bad product, but rather poor marketing and evangelism, the third troubled front. Let's face it: If you can't show the market value of Windows XP over prior efforts, you're not doing an effective marketing job. Microsoft's only hope is to relaunch and reinvigorate XP quickly, making sure that existing XP customers migrate to Service Pack 2 and getting the majority of the customer base to migrate before 2006. That's going to mean some effective marketing, not the fluffy, touchy-feely stuff we've gotten recently (or, worse, something like those inane Microsoft Office commercials, which make me cringe whenever I see them). It's time for Microsoft to start showing what customers can do with their products and how they can improve their businesses and their lives.

This is a huge opportunity for Microsoft's competitors and customers. The competitors can use this as an opportunity to close the gap before Redmond gets its act together. IT departments should use the time to evaluate all their options for the desktop. While most will be well served by going to XP, some will benefit from looking at other options, if for no other reason than to compare and justify costs.

It's time to get users off old Windows versions for security and reliability reasons, and if Microsoft doesn't step up to the plate quickly, someone else will. Like nature, the IT industry abhors a vacuum. The market simply won't stand still until 2008, or whenever Longhorn ships. **45641**

WANT OUR OPINION?

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READERS' LETTERS

Boomers to Linger

IT'S VERY DOUBTFUL that a mass exodus of baby boomers will occur as soon as they're eligible for retirement ["Stay Just a Little Bit Longer," QuickLink 44897]. There are two reasons for this. First, a large percentage of the IT world is composed of workaholics who wouldn't know what to do with themselves if they retired. Second, many people have spent themselves into lifestyles they couldn't afford if they retired. It's going to be just as large a problem to retain the talented workers who are frustrated waiting to advance into positions held by those who should retire.

Andrew Creed
Duluth, Ga.

RFID Credit Risk

JAY CLINE'S ARTICLE "The RFID Privacy Scare Is Overblown" [QuickLink 44795] was mostly on target. Where he and I diverge is RFID-enhanced credit cards. I realize that there are risks with handing my credit card to a restaurant employee or using it with a Web-based vendor, but those are risks I choose to assume. I most likely would know the source of a credit "leak" in that case. Not so if my credit card has an RFID tag.

Nothing would prevent someone from developing a portable device that could read the values on the cards in my pocket. A talented thief with such a device could easily harvest thousands of credit cards during the Christmas season.

Gary Rimar
Owner, Dynamic Solutions, Bloomfield Hills, Mich., me@garyrimar.com

Offshoring Makes False Assumptions

I DON'T UNDERSTAND the call by the proponents of offshoring for Americans to become better educated. India, China and Eastern Europe can keep up with us on the educational front. What they have is the ability to undercut our labor costs.

Truly, for America to compete, as Dan Gillmor says, lower expectations are required ["Offshoring and Lowered Expectations," QuickLink 45077]. Can a highly educated American ever accept $10 an hour?

Gary L. Sampson
Blackwood, N.J., daysofnoah@comcast.net

ALEXANDER Katsenelinboigen asks us to "imagine that a programmer in India writes a program so useful that it creates thousands of jobs for developers in the U.S. to adopt, support and enhance its functionality" ["The Peculiar Nature of Software," QuickLink 44937]. But even if this imaginary situation occurred, only a small fraction of U.S. IT job losses might be offset. In general, the authors of most opinion pieces on offshore outsourcing say one of four things:

1. Poor education is the cause of outsourcing, and better education in new skills is the answer. (What are these magical skills that can't be done cheaper in another country?)

2. Mainly low-level jobs, like coding and debugging, are being outsourced. (In small and medium-size shops, well-paid developers do the coding and debugging themselves, and they spend most of their time doing those "low-level" jobs.)

3. Outsourcing allows businesses to sell their products more cheaply to U.S. consumers. (But aren't at least some of these consumers the workers whose jobs have gone overseas?)

4. What's good for business is good for us all. (Read Sinclair Lewis.)

Mike Bergman
SAP team leader, Downers Grove, Ill.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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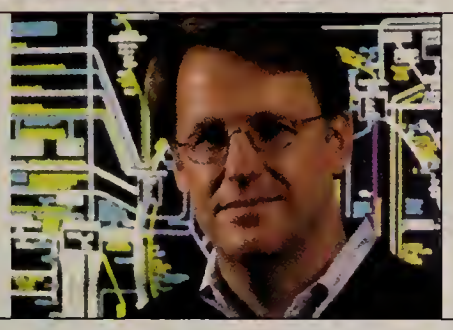
Data Finds a Place On the Grid
Interest is growing in grid technology as a means of sharing data within an enterprise and outside it. But vendor support is just beginning to emerge, and standards are still evolving, say researchers such as Ian Foster (right) of Argonne National Laboratory. **Page 22**



SECURITY MANAGER'S JOURNAL
Cheap Scanning Comes at a Price
Using Nessus software for port scans helps the budget, but the freeware's inadequate reporting and management capabilities send Mathias Thurman looking for alternatives. **Page 28**

OPINION
Pick Your Outsourcing Perspective
Paul A. Strassmann says calculating the value of outsourcing can depend on how you look at it. **Page 30**

MARLENA ZUBER

Winning THE Name Game

Technology tools are helping companies monitor their reputations on the Internet.

By Alan R. Earls

HOW MUCH is an organization's reputation worth? Just consider the fate of Martha Stewart's company since its founder has been in legal hot water — stock prices battered, consumers on the run and no place to lie low until the scandal fades from public memory.

While Martha Stewart Living Omnimedia's fate offers an extreme example of a spoiled corporate reputation, damage can also come more subtly. In the Internet Age, companies are learning that they must be more alert than ever to what customers, shareholders, regulators and the media think about them — and what they say about them.

"Reputation management is one of the most important components of a successful PR department, but it is also one of our greatest challenges," says Dan Miller, public relations manager at PacifiCare Health Systems Inc., a health care provider in Cypress, Calif. Miller says his five-person department has struggled to find the time to adequately assess what's going on in the industry and has relied on an outside consulting firm to perform a manual analysis of what's being said about PacifiCare in print and on the Web.

But things are changing. Today, reputation management is increasingly the focus of new technologies and techniques, ranging from human-aided Web searches to advanced analytical software running on enormous server farms dedicated to teasing trends and shades of meaning from millions of Web pages. PacifiCare now tracks its reputation using software delivered as a service from Biz360 Inc. that mines millions of Web pages for information about the company and the context in which it's presented.

Even with the best technology, protecting and strengthening a corporate reputation is no small task, in large part because the Web has empowered people to communicate more freely and openly than ever before — sometimes blindsiding businesses that thought they were sitting on top of the world.

As a matter of fact, *reputation management* has two current meanings. From the consumer's point of view, reputation management consists of those consumers who, on their own initiative, share their impressions of an organization or person. Familiar examples include book reviews on Amazon.com or the comments that buyers and sellers post on eBay about one another's business practices. In short, consumers manage the reputations of those with whom they do business.

Companies on the receiving end of such scrutiny, however, view reputation management as the actions they need to take to ensure that they and their brands remain unsullied and viewed in the most positive light possible. And it's here that technologies like those adopted by PacifiCare are emerging to improve the awareness and responsiveness of organizations.

Making Reputations

Consumers have been empowered by their ability to provide feedback and comments about products, says Jakob Nielsen, author of the influential book *Designing Web Usability* (New Riders, 1999) and one of the first to use the term *reputation management* in a Web/consumer context. However, he notes, there's a growing awareness of the limits of this approach, because it's so easy to "game" the system. "We saw this recently with Amazon.com, where

Winning the Name Game

it was revealed that many positive book reviews were generated by the authors themselves," Nielsen says.

But more sophisticated rating systems are evolving, he says. For example, Epinions Inc.'s Epinions.com not only accepts consumers' votes but also offers a feedback mechanism to assess the reliability of those comments. Nielsen says such multilevel approaches create "a web of trust."

Although consumer-driven reputation management may be a growing force, Nielsen says that for the moment, search engines are probably even more influential. "Most consumers and most people in business don't really grasp how the technology works — and how it drives markets and perceptions," he says.

For instance, Nielsen observes that Google Inc. depends on the "reputations" of Web sites because its search engine gives higher rankings to a site based on the number of links that are made to that site. And, of course, people have been known to set up "link farms" to try to improve the rankings of their Web pages, he says.

"Some companies are still clueless; they think image is the way to go on the Internet," Nielsen says. "But more and more appreciate that because it is a network and offers two-way communication, they need to respond in more creative ways."

A Fountain of Information

One of the most ambitious attempts to do just that is under way at IBM's Almaden Research Center. A data mining system dubbed WebFountain digests millions of Web sites and billions of pages of text and other data with the help of a giant server farm to provide insight on a wide range of subjects (see Future Watch, page 23). And the process is open-ended — WebFountain is armed with sufficient intelligence to discover data patterns that may reveal new trends or opportunities.

New York-based Factiva, a joint venture of Dow Jones & Co. and Reuters Group PLC, has partnered with IBM to co-develop text analytics applications built on the WebFountain platform.

Factiva's first application on the platform will track corporate reputations by analyzing information from a vast collection of Factiva sources, Internet pages and newsgroups. The resulting reports will show the information in context, providing a view of relevant business issues and industry trends and exposing relationships. Factiva says a company can use this software to get a clear view of corporate or brand perception, how that perception is changing and emerging issues associated with that company or brand.

Dennis Cahill, associate vice president of technology at Factiva, says the service can even scan message boards and blogs, "where people form their opinions," and combine those results with information from the mainstream press. "We feel this is the first tool that will really allow companies to effectively understand the worldwide conversation that is occurring around their products and services," he says.

The service is targeted at companies with $150 million or more in revenue. Cahill says IBM provides the back-end text mining onto which Factiva grafts its intelligence. Subscribers also get some help with setup and analysis from human experts.

"Out of the box, there are sets that isolate premium articles and special-interest groups, but a user can then set things up so they can view them differently," he explains. Factiva has yet to sign up a customer, but Cahill says there has been strong interest, and he's confident that the product will be widely embraced.

Looking Outward

Meanwhile, San Mateo, Calif.-based Biz360 has been providing its own Web-based analysis for clients by monitoring some 50,000 print, online and broadcast sources. While its breadth of analysis, which is limited to traditional media sources, may be less ambitious than that of the WebFountain/Factiva offering, Biz360 has managed to sign up some well-known customers.

You Mon Tsang, chief marketing officer at Biz360, says most companies do a good job of managing information internally, but "the same rigor isn't applied to external information, which is collected haphazardly, if at all." And if "all you do is stare at the corporate dashboard," you're in big trouble, he says, because you won't understand the evolving market dynamics.

Tsang says Biz360's software delivered as a service tracks up to 1.25 million pages and applies intelligence on top of that to answer questions. In addition to PacifiCare, Biz360's clients include 3Com Corp., Harley-Davidson Inc., Seagate Technology LLC, Sun Microsystems Inc. and VeriSign Inc.

"We do track reputation management, but the main reason we use Biz360 is for brand management — to try to increase our mind share with customers, shareholders and industry influencers," says Woody Monroy, executive director of corporate communications at Scotts Valley, Calif.-based Seagate.

"In the bad old days, a PR agency would give you a monthly clips report and you would try to do an analysis on that," says Monroy. But with Biz360, he says, "we have real-time access, allowing us to be much faster on our feet." Monroy also says Biz360's international coverage is a big help, since only a third of Seagate's revenue comes from the U.S. "We had trouble getting that information before we adopted this product a couple of years ago," he says.

Ideas Rather Than Words

The key to Factiva and some of the other reputation management offerings is text analytics, says Susan Feldman, an analyst at research firm IDC. "That capability lets you look inside documents and pull out the information you need on a specific topic — it parses the document the way you would parse a sentence in fifth grade," she says. Feldman says syntactic analysis is much more sophisticated than what a search engine does. "It can distinguish the difference in meaning between the statements 'Bill hit Fred' and 'Fred hit Bill,' " she explains.

"If you want to look for ideas rather than just words, you can store them as a block that includes the subject, object and verb relationship," says Feldman. "Then you can match those similar concepts."

Factiva's Cahill says the ability to match and relate concepts will become more valued as companies begin to understand the importance of monitoring their reputations. "Corporations spend a lot of money trying to understand how consumers view them," he says. "This technology lets you monitor everything — what's in the mainstream press as well as the smoldering fires."

Still, precisely because the stakes are so high, PacifiCare's Miller says he'll probably continue to use more traditional quarterly reports from a human-based consulting service to supplement the daily flow of data from Biz360. "It provides checks and balances that we find valuable," he explains.

45643

Reputations Caught in the Web

"Search engines have become the primary resource for journalists and other constituents to gather information on a specific company," says Robert Key, president and CEO of Converseon Inc. "Yet while many companies may pay close attention to how the traditional media portrays them, most companies are completely unaware of what information is appearing when search engine users type in a company's name."

Converseon, which calls itself a "digital communications agency," has rolled out what it claims is the first search-engine reputation management service. It's designed specifically to help companies better monitor and control their reputations by helping them manage what appears in search listings under company-branded keywords.

"Search engines are a critical element for reputation management, as they have become a powerful new form of media," says Key, pointing to examples such as McDonald's Corp. and Nike Inc. When users type those companies' names into Google, they can turn up highly negative sites like the Boycott Nike Homepage and McSpotlight.org, which calls itself a "protest site."

Converseon and companies like Biz360 and Factiva aren't alone in seeking to make or repair their corporate reputations in cyberspace.

Burson-Marsteller, a New York-based public relations agency, has begun to focus on online reputation management and has produced a body of studies it calls the e-fluentials (*www.efluentials.com*) about online public-opinion leaders. Burson-Marsteller also offers tools to review how companies respond to crises and issues using their Web sites.

And Peter M. Sandman, a reputation management consultant in Princeton, N.J., offers software called Outrage (*www.psandman.com/outrage.htm*) that he says can "help you figure out how to reduce stakeholders' outrage."

– Alan R. Earls

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VERITAS VISION

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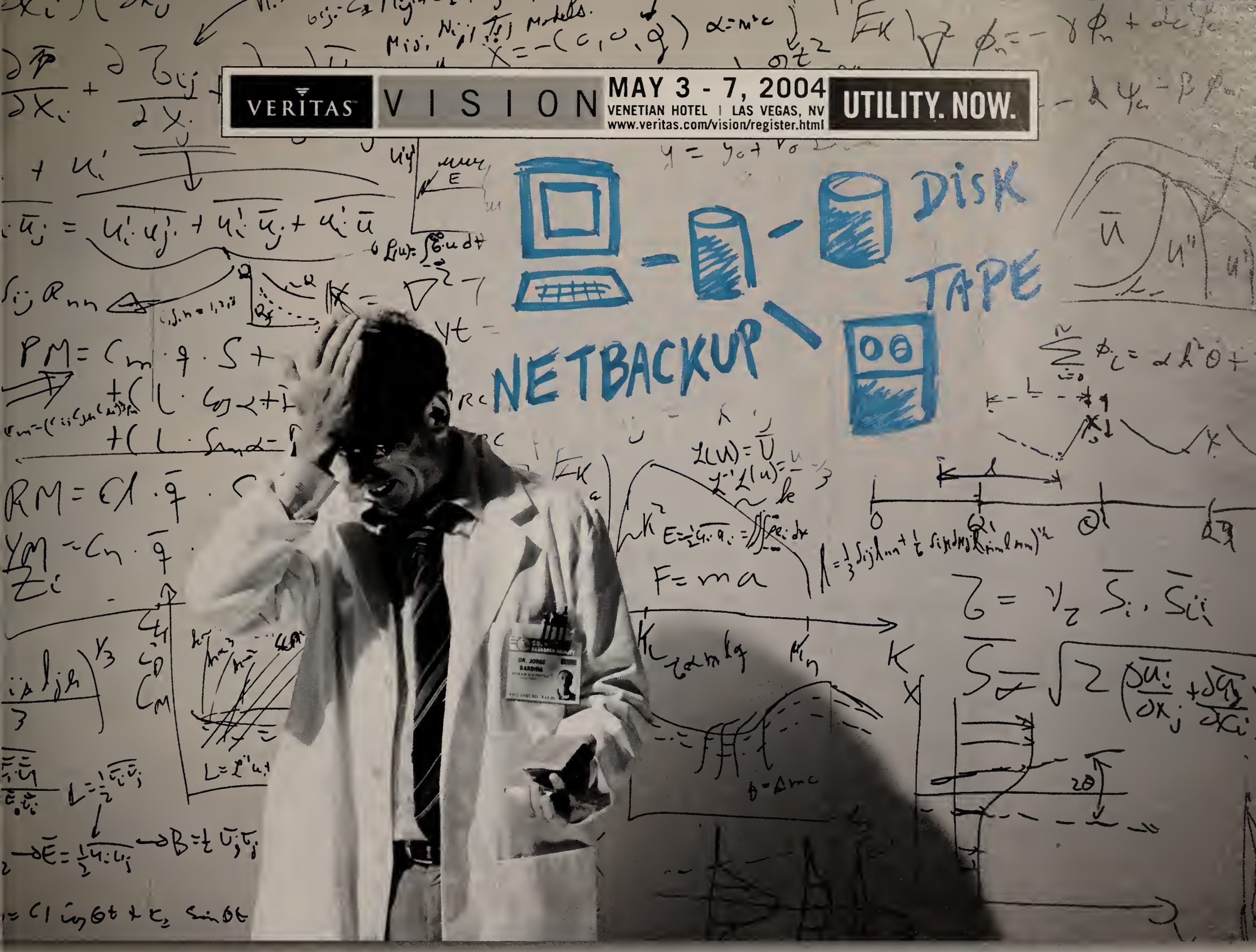

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DATA FINDS A PLACE ON THE GRID

Vendor support and standards are just evolving, but companies are looking to share data across grids.

BY PATRICK THIBODEAU

THE DATA GRID has been playing second fiddle to the compute grid when it comes to media attention. But companies and public institutions searching for better ways to share and manage large amounts of data are beginning to take notice.

A compute grid allows users to take the computing resources in a distributed and heterogeneous environment, manage those disparate resources as one and focus them on problem solving.

A data grid acts in a similar way. It has a middleware layer and metadata framework to give users a centralized view of distributed data without physically centralizing the data.

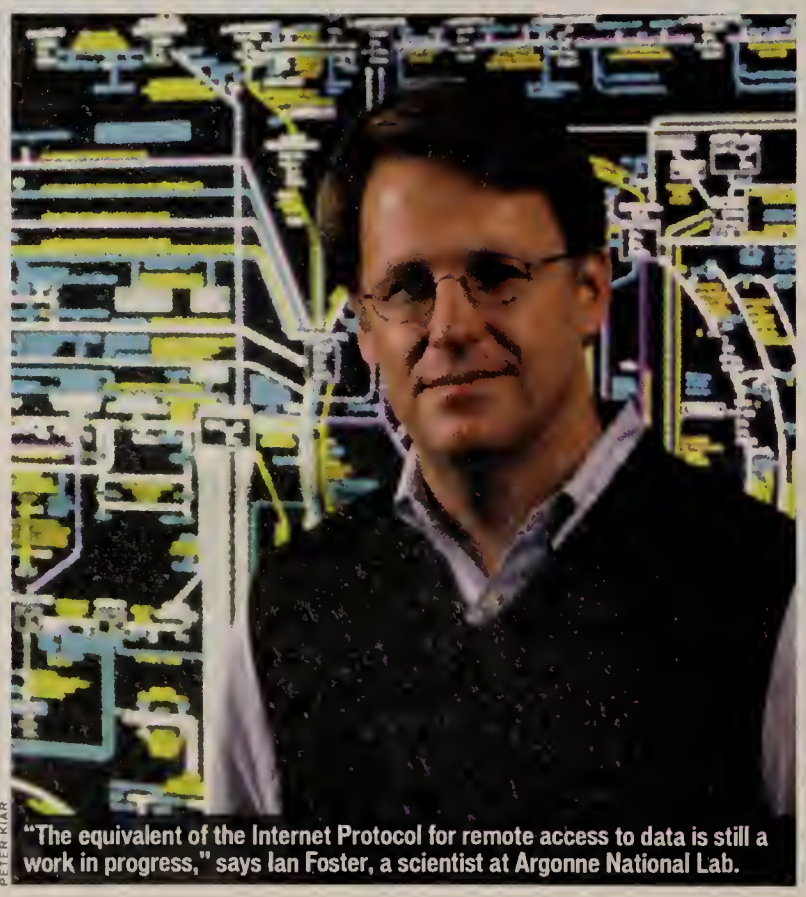
That means the data can be located on Windows, Unix or Linux systems running multiple formats. It can be structured or unstructured and can consist of different media types. A data grid and a compute grid can operate together — the principles are the same.

But there are limits to what a grid can do. A grid, for instance, doesn't offer a means for discovering and categorizing unstructured data. What the data grid provides is a standards-based framework for interconnecting that information once those tasks are addressed.

Data-grid technology is in the early-adopter phase, drawing the interest of research institutions with large and scattered data repositories, such as Pfizer Global Research & Development in Groton, Conn., and the University of Arkansas Center for Advanced Spatial Studies in Fayetteville, as well as research consortiums such as the European Union's DataGrid project, led by particle physics research center CERN.

Data grids will find broader applications as standards mature and technology problems, such as managing security in a grid's distributed environment, are solved, say analysts and users.

"I think the whole promise of grid is pretty exciting," says Paul Lewis, director of research information architecture at Pfizer. But more work is needed, he adds.



PETER KIAR

"The equivalent of the Internet Protocol for remote access to data is still a work in progress," says Ian Foster, a scientist at Argonne National Lab.

Seeking Support

Products that support data in a grid environment are emerging. For example, Pfizer uses Avaki Inc.'s data-grid software. The Center for Advanced Spatial Studies takes advantage of the grid capabilities in Oracle 10g, Oracle Corp.'s flagship database.

But the very concept of grids involves interconnectedness among disparate applications and data sources. Until vendors include standards-based grid capabilities, interfaces and processes in their products, data-grid adoptions are going to be limited.

"Vendors have got to step up and say, 'We're going to make our products grid-enabled,' " says Lewis. "If more vendors grid-enable products, it makes our job easier, because then we can plug in more computers when we need more capacity."

Emerging data-grid products, such as Avaki's, are being used within companies. But some of the leading thinkers behind the data-grid effort imagine developing systems that connect large numbers of enterprises, entire supply chains and customer bases.

"The equivalent of the Internet Protocol for remote access to data is still a work in progress," says Ian Foster, senior scientist and head of the Distributed Systems Lab at Argonne National Laboratory in Illinois and co-director of the grid standards effort at the Globus Alliance.

"Certainly, we've got some pretty good solutions for fixed-file-based data, and we are starting to address relational databases and XML databases, but there is much more to be done," he says.

Put to the Test

The trailblazers of large data grids include the DataGrid project, which has spent the past two years and 10 million euros developing a testbed linking major European research institutions. The testbed is intended to handle tens of thousands of computing resources.

The DataGrid project has been addressing uniform access to those resources, security and data replication to make data on another system appear local to the user.

The "middleware is still fragile," and security "is not perfect," says Frabrizio Gagliardi, who heads the project. But enough advances have been made for the EU to approve more than 30 million euros over the next two years to fund a larger effort called Enabling Grids for E-science in Europe, or EGEE.

Avaki's data grid allows Pfizer researchers to share data. Previously, genetic research data was published and made accessible to other researchers through a file transfer protocol process. "That's not an efficient use of our network, and it's a manual process," says Lewis. "And you can have failures during the FTP process."

TYPICAL DATA-GRID ENVIRONMENTS

- Scientific applications
- Computationally demanding applications
- Large data sets and archives
- Projects and enterprises that involve dispersed users and resources
- Projects and enterprises that require a broad range of capabilities and resources

SOURCE: GLOBUS ALLIANCE

The data is now published to the grid, and anyone with the appropriate permissions can access it. Because of the caching mechanism, the data appears local to the user, says Lewis.

One key benefit of a grid approach, says Fred Limp, director of the Center for Advanced Spatial Studies, is that it allows him to make the most of a mix of different vendor offerings, potentially reducing his hardware costs.

"As long as I am running [Oracle] 10g, I have that kind of flexibility," Limp says. The grid is lowering costs and improving the center's ability to process data. "Any of the resources within that grid are available to me or the application as necessary," he says.

Philip Russom, an analyst at Forrester Research Inc. in Cambridge, Mass., said products from Oracle and Burlington, Mass.-based Avaki represent the leading edge of grid offerings, but he expects other integration vendors to follow soon. Financial services firms, insurance companies and other enterprises with heavy data requirements will likely remain the primary corporate users. A grid approach may offer them a way to integrate existing data silos or "integrate the integrations," Russom says. **45654**

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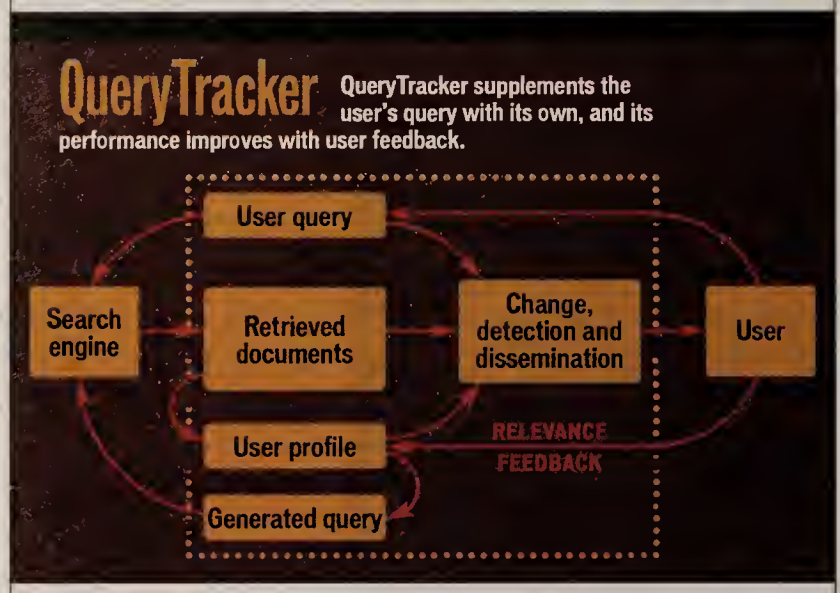
SEARCH FOR TOMORROW

SEARCH ENGINES GET SMARTER, MORE POWERFUL.

BY GARY H. ANTHES



Most information junkies would be hard-pressed to name anything that has transformed their professional lives as much as Internet search engines have. The miraculous devices can take your hot topic of the day, scan millions of Web pages and in seconds bring back product announcements, research papers, the names of experts and more — things that would be difficult or impossible to find otherwise.

But as powerful as they are, search engines have huge weaknesses. For example, a recent Google search on the word *Linux* took just 0.4 seconds, but it had 95 million hits. Too bad if the one you need is No. 10,000 on the list.

But researchers are poised to revolutionize search technology over the next few years. The most common thrust is to personalize search engines so that they know, for example, that if you're an IT professional and you search for *mouse*, you're more likely to want information about PC devices than about animals.

Adele Howe, a computer science professor at Colorado State University in Fort Collins, and Gabriel Somlo, a CSU graduate student, have built a proof of concept called QueryTracker, a software agent that sits between a user and a conventional search engine and looks for information of recurring interest, such as the latest news about a user's chronic illness. QueryTracker submits a user's query to the search engine once a day and returns results from new Web pages and pages that have changed since the previous search.

The magic in QueryTracker comes from its automatic generation of an additional daily query — which Howe says is often superior to the user's original query — based on what it learns about the user's interests and priorities over time. It filters the results of both queries for relevance and sends them to the user.

QueryTracker's ability to generate its own searches can compensate for the poorly formed queries that many users write, Howe says. "Even people knowledgeable about the Web are often either lazy or they are just not informed about how to write good queries," she says. The most common mistake: queries that are too short, like the one-word Linux search.

Jeannette Jenssen, a mathematics professor at Dalhousie University in Halifax, Nova Scotia, is taking search personalization techniques a step further, to the "crawlers" that index Web content before it can be searched. She says the popular search engines have three drawbacks: They are increasingly charging corporate users for their services, they skew results in favor of advertisers, and they often retrieve huge amounts of irrelevant information. But Jenssen's "focused crawler" indexes only pages related to prespecified topics and then tailors the rankings to the interests of the user.

FUTURE WATCH

For example, she says, a medical society might run the crawler nightly to index just pages relating to medicine. And it would rank the resulting hits in a way that made sense to the medical establishment, not to advertisers or average Web surfers. The crawler would get progressively better at building its nightly index by observing the behavior of the searches against it.

Other focused crawlers look for pages containing information that meets specific criteria. But Jenssen's crawler can discern hidden, or indirect, links through a process she likens to the children's search game "warmer-colder."

For example, she says, imagine a Web crawler that focuses on computer science topics. Computer science research papers often are linked to the home pages of the professors who wrote them, and their pages are linked to the professors' universities' home pages. "When the crawler gets to the university page, it searches more intently than it would at a company page," Jenssen says. "It says, 'I'm getting warmer.' It analyzes user behavior and Web paths to automatically learn these trajectories."

Filippo Menczer, a computer science professor at Indiana University in Bloomington, says conventional search engines determine a document's relevance by considering various things in isolation. They may first select a document because it contains the keywords in the query. Then, to rank the results, they may consider how many links point to the document. Better results could be obtained from considering many such "measures of relevance" — including user preferences — in combination, and in considering combinations of pages rather than single pages, Menczer says.

Such complex and powerful searches will be practical in three to five years when computers are more powerful. "We'll do brute-force, large-scale data mining over the whole Web — over many terabytes of information," says Menczer.

Data Fountain

Brute force is a pretty good description of IBM's WebFountain, a huge Linux cluster that runs 9,000 programs continuously and crawls 50 million new pages every day. But WebFountain doesn't simply index keywords; it applies natural-language analysis concepts to extract meaning from unstructured text.

For example, it determines whether an entity is a person's name, company name, location, product, price and so on, and then it attaches searchable XML metadata tags to it. "We are tagging the entire Web, all of Usenet news, all the wire services and so on," says Dan Gruhl, WebFountain's chief architect at IBM's Almaden Research Center.

The software is pretty good at extracting and tagging the semantic meaning of unstructured text, but Gruhl says more research is needed to do reliable "sentiment analysis," which, for example, would let companies automatically monitor the reputations of their products. (To read more about this feature, see "Winning the Name Game" on page 19.)

Researchers at the Almaden center are experimenting with Sentiment Analyzer, which tries to extract opinions from online text documents. If a customer said at a Web site, "The Ford Explorer is great," that would be easy to classify, Gruhl says, but if the customer said sarcastically, "It's almost as good as the Ford Pinto," semantic analysis software would be stumped.

Making sense of that kind of statement is one of the goals of IBM's research. **45571**

Search This

Researchers at the University of California, Berkeley, estimate that in 2002, 5 exabytes of new information was recorded on paper, film, and magnetic and optical media. How much is 5 exabytes?

Kilobyte:
1,000, or 10^3, bytes
2KB = a typewritten page

Megabyte:
1,000,000, or 10^6, bytes
1MB = a small novel

Gigabyte:
1,000,000,000, or 10^9, bytes
1GB = a pickup truck full of books

Terabyte:
1,000,000,000,000, or 10^{12}, bytes
1TB = 50,000 trees' worth of printed pages

Petabyte:
1,000,000,000,000,000, or 10^{15}, bytes
2PB = all U.S. academic research libraries

Exabyte:
1,000,000,000,000,000,000, or 10^{18}, bytes
5EB = all words ever spoken by human beings

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BRIEFS

Extensis Revises Portfolio 7 Server

Extensis Inc. in Portland, Ore., announced an updated release of its Portfolio 7 Server for digital asset management. New features include automatic content synchronization, enhanced collaboration and automated workflow tools. Also new are optional connection modules for Microsoft SQL Server; modules for Oracle and MySQL will be available in July. Portfolio 7 Server for Windows will be available this month for $3,499, followed by a Macintosh version in May.

Sun Offers Early Access to Java Tool

Sun Microsystems Inc. announced that an early-access release of its Sun Java Studio Creator application development tool will be available April 8. The tool includes the Java Enterprise System runtime, the Java 2 Standard Edition Platform Software Development Kit and a small-footprint database server from PointBase Inc., a division of DataMirror Corp. The final product is due to ship midyear, according to Sun.

Jasomi Updates VoIP Controllers

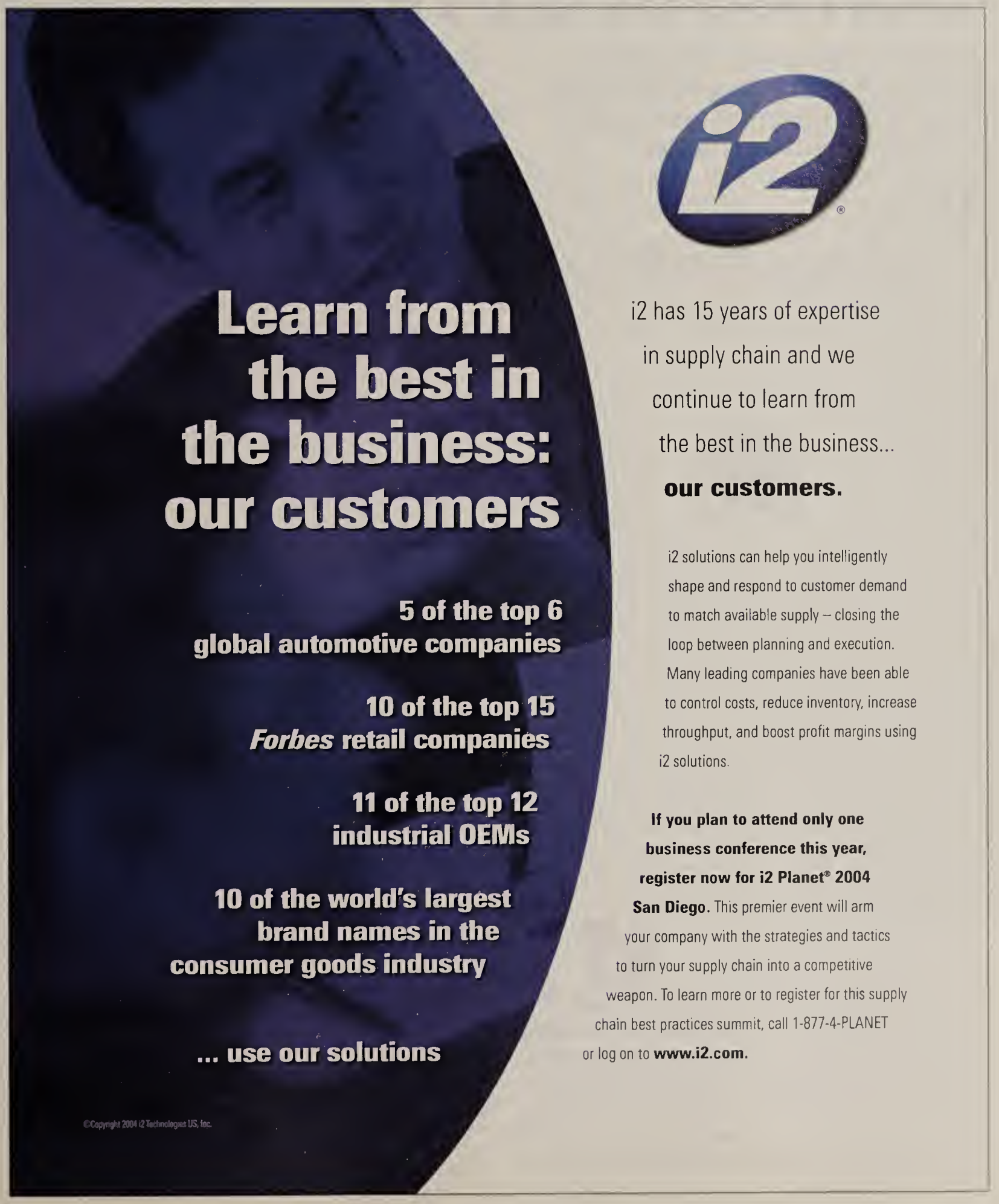
Jasomi Networks Inc. in San Jose last week announced an upgrade to its line of voice-over-IP controllers, known as PeerPoint 3.2. New features include enhanced midcall encryption, compliance with encryption standard RFC 3550, improved protocol-repair capabilities and improved hot failover support, the company said. No pricing was announced.

Zend App Stabilizes PHP on Windows

Israel-based Zend Technologies Ltd. has announced WinEnabler, software designed to make the PHP Hypertext Preprocessor as stable in a Windows environment as it currently is on Linux and Unix, according to the company. PHP was initially written for a Linux/Unix multiprocess platform where each server request is handled by its own process. Web servers on Windows, however, use the model of multiple threads within a single process, which means that if a PHP thread crashes, it can bring down the entire Web server. WinEnabler runs as a layer between PHP and the Web server, mediating between them. Pricing for the software starts at $195 per server.

Anta Announces VOIP System

Anta Systems Inc. in Santa Clara, Calif., last week announced the Simplicity VoIP System. It includes an IP PBX, a VoIP service switch and business-class phones based on the Session Initiation Protocol. The system can serve from 2,000 subscribers per VoIP switch to 20,000 subscribers in a cluster of switches. Pricing wasn't available.



Cheap Scanning Comes at a Price

A global deployment of the free Nessus port-scanning software saves the budget but lacks the reports that management demands. By Mathias Thurman

VULNERABILITY assessments are a crucial aspect of our overall information security program. We use Nessus, a port scanner that's available free on the Internet, to conduct assessments of our infrastructure. To ensure that we have full coverage, we've installed what we call "scan engines" at various locations throughout our organization in the U.S., Europe and Asia.

Each scan engine consists of a PC with our hardened installation of Linux and Nessus loaded on it, and each is responsible for scanning ports across its respective geographical area. My team and I just beefed up the scan-engine PCs with additional memory. We've also written scripts, which we configured within Nessus by selecting various plug-ins, to continuously scan our infrastructure for certain types of vulnerabilities.

Since we're scanning huge amounts of address space, a full scan using all available plug-ins would take many days, use a lot of resources and create lots of data to review. Instead, we try to strike a balance by selecting only those sets of plug-ins that represent the most serious risks.

The downside is that by not running all available plug-ins, we risk missing a potential vulnerability. For now, however, the ability to very quickly scan our entire environment is more important. We still do periodic scans with a more comprehensive list of plug-ins, but not on a daily basis.

One plug-in we enable is for the remote procedure call Distributed Component Object Model vulnerability, which is responsible for allowing worms such as MS Blaster to propagate through the network. By scanning in an expedited manner, we can quickly identify vulnerable workstations and servers.

SECURITY MANAGER'S JOURNAL

We try our best to keep servers and workstations patched, but every now and then a resource gets installed in a location that isn't under our control, such as the engineering labs, and malicious code sneaks into our production environment.

In my company, the engineering labs aren't controlled. Servers and workstations are built up and torn down regularly, without much thought given to secure installation practices. We're working on a plan to segregate the labs from the rest of the corporate network, but until we get executive buy-in and funding for this project, we will continue to have this risk.

As much as we'd like to think that employees are following policy and not using their home PCs to access our corporate network, it's clear that they're doing exactly that.

Virtual private networks and dial-up connections are other points of entry for malicious code. As much as we'd like to think that employees are following policy and not using their home PCs to access our corporate network, it's clear that they're doing exactly that. Since home PCs aren't patched and configured to our standards, malicious code often propagates through our VPN and into our production network from these unsecured resources.

Nessus Shortcomings

As useful as Nessus is, it has a few shortcomings compared with commercial scanning products. The first is centralized management. It would be nice to be able to manage all of our scanning engines from one location, but with Nessus, we must log into each scan engine separately.

Another problem is the inability to provide role-based access to the scanning infrastructure so that nonsecurity personnel can use the application to scan certain networks for specific vulnerabilities.

Finally, there is the whole issue around reporting. No matter how robust, easily manageable, intuitive and inexpensive the tool is, if we can't produce meaningful reports, it's hard to get management support. We've done some manipulation of the raw data produced by Nessus, but we can't afford to dedicate a person full time to creating reports.

Most commercial tools have addressed these shortcomings, but you pay a steep price. Unfortunately, our security budget has been cut drastically, and we have to be very picky with how we spend money.

We'll probably look at some commercial tools that can supplement Nessus with strong reporting features but continue to manage the scanning engines individually. Who knows? Perhaps someone will release an open-source centralized management tool for Nessus.

Another option for reporting just might lie with security event management (SEM) software. These programs, also called security information management tools, are fairly new and look promising.

By using SEM software, we can funnel or redirect all of our event logs to a centralized server, including logs from all of our firewalls, routers, intrusion-detection systems, Tripwire change monitoring, authentication servers, Unix systems logs and Windows NT security event logs.

The SEM server then aggregates and correlates the data to provide a meaningful look at events within the environment. It can also archive the data, send out alerts and report on events, trends and usage.

SEM is a powerful technology that can provide information not only on security events but also on other business process issues. That should help us meet Sarbanes-Oxley Act compliance requirements.

I'm reviewing products from several SEM vendors now. One that has the most potential for my organization is ArcSight from Sunnyvale, Calif.-based ArcSight Inc. We've had limited exposure to this tool, but it seems like the answer to many of our security needs, since it can accept results from our Nessus scan engines. If ArcSign's reporting is strong enough, it would alleviate the need for us to replace Nessus with something more expensive.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum. **QuickLink a1590**

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SECURITY LOG

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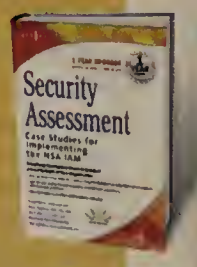

***Security Assessment: Case Studies for Implementing the NSA IAM*, by Russ Rogers, Greg Miles, Ted Dykstra and Ed Fuller; Syngress, 2004.**

This book shows how to conduct security assessments the National Security Agency way. However, it won't teach you how to conduct penetration testing, social engineering reviews, code reviews, network architecture reviews and so on. Rather, it presents information that an NSA auditor might use in the information-gathering phase, just prior to deploying a "Tiger Team" to try to break your computer security defenses.

But just because the methodologies are related to the way the NSA does things, that doesn't mean they don't apply to other industries as well. For example, several of the included checklists will be useful the next time I'm asked to conduct a merger and acquisition assessment. This book should be most useful for security professionals who need to strengthen their security assessment practices.

– Mathias Thurman

Trusted Network Updates Firewall

Alpharetta, Ga.-based Trusted Network Technologies Inc. (TNT) this week will introduce a new version of its firewall technology designed for internal corporate networks. The technology combines a user authentication function with policy enforcement to ensure that only authorized users have access to specific networks and to the applications residing therein, TNT said.

The company's new Identity Version 1.6 software includes an interactive reporting capability, new auditing functions and support for security policy enforcement at the individual user level. Pricing for the technology starts at $40,000.

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BRIEFS

PivX Launches Security Software

PivX Solutions LLC has released Qwik-Fix Pro, a desktop security program that the Newport Beach, Calif.-based company says detects and mitigates Windows and Internet Explorer vulnerabilities. The program, which issues "real-time fixes and threat mitigations," is designed to protect systems until Microsoft Corp. delivers a suitable patch, PivX said. Qwik-Fix Pro is automatically updated as new vulnerabilities are discovered and includes a central management console. Pricing starts at $29 per seat.

Symbio Releases Thin-Client Suite

Symbio Technologies LLC in New Rochelle, N.Y., has announced a new Linux-based thin-client network management application. The Symbiont Management Suite is a terminal services package that can be set up to let thin-client users access Windows, Linux and Macintosh applications from central servers, allowing businesses to cut hardware costs and reduce systems maintenance, said Symbio.

The application also provides administrators with a wide range of systems information, including user and workstation status on the network, according to the company. Symbiont Management Suite is available now at $1,300 per server.

Durham Police Use Real-Time Video

The Durham Police Department in North Carolina has deployed a wireless surveillance system that provides law enforcement personnel with real-time access to live video from a bank when its alarm system is activated. The system, from Melville, N.Y.-based Verint Systems Inc., enables emergency 911 call centers to distribute real-time video from bank cameras to laptop devices in squad cars as well as to handheld devices for officers on foot.

PAUL A. STRASSMANN

Pick Your Perspective On IT Outsourcing

OUTSOURCING HAS ANCIENT ORIGINS. It has been the basis for all trade since the birth of organized society over 10,000 years ago. Civilization can progress only by making the best use of resources, wherever they may be available. That makes it necessary to purchase goods and services you'd otherwise have to produce yourself.

PAUL A. STRASSMANN (paul@strassmann.com) views IT as a competitive weapon in a game where only the total value-chain optimizers will end up as winners.

Why has outsourcing suddenly become one of the most controversial topics among IT professionals? As far as IT staffs are concerned, outsourcing breaks up the traditional budget patterns wherein a company had direct control over 80% of IT spending. IT outsourcing is seen as a threat to the status quo and to the custodianship of custom-made systems. IT staffs now have to compete with outsiders. Systems designs that locked in costly corporate-specific solutions now have to become open to standard and even commodity solutions. If your job is at stake, you won't favor something that alters a hitherto protected situation.

Nevertheless, IT outsourcing is here to stay and will continue to grow with the rise in global commerce. Therefore, it may be useful to gain a better perspective of what outsourcing could do for your organization. In doing so, you'll be better able to rationally cope with outsourcing proposals whenever an economic justification for such a move is presented at your company. To illustrate, I use the economics of a $40 (retail price) Logitech computer mouse.

Logitech Inc. is a Fremont, Calif.-based multinational company. The mouse is assembled in China. According to *The Wall Street Journal*, the assembly costs $3, about $1 of which is spent on information overhead. Globally produced parts costing $14 account for most of the mouse's manufactured costs. I estimate that the logistics support to get the components to the assembly plant consumes about $3.50. This leaves the company with $8 for sales, marketing, and research and development, plus profit, with an estimated $6 of that going toward information management. The mouse is then sent through a distribution and retailing chain costing $15, an estimated $10 of which is for information costs. From Logitech's standpoint, it has outsourced 80%, all but corporate costs and profit, of the value chain (see "Economics of IT Outsourcing" below).

IT OUTSOURCING RATIOS

As seen by factory	467%
As seen by management	213%
As seen by competitor	95%

If the CIO of Logitech had oversight of every penny of corporate IT spending, this would account for only 66 cents. In a typical outsourcing contract that produces 10% in operating savings, the deal could shave as much as 6.6 cents from total costs. From a purely technical standpoint, such a move could be worthwhile. However, this still begs the question of what the role of a CIO ought to be in a multinational organization. Does the scope of the job just cover the 66 cents for corporate IT; does it include $6 for corporate information management and $10.50 for the logistics pipeline stretching from China to Logitech's warehouses; or is the CIO responsible for the $20.50 in total information costs that matter when competing against aggressive suppliers?

Depending on whether outsourcing is considered from the standpoint of the factory, management or the competitor, the outsourcing ratios (calculated as purchased goods and services/cost inputs) would be 467%, 213% or 95%, respectively (see box above). The competitor could then have an advantage in outsourcing less, because that company could make product improvements more rapidly. My take is that before you chase 6.6 cents' worth of IT cost reductions, you'd better make sure that this won't jeopardize the capacity to improve on the $20.50 that a competitor is striving to take over.

The most frequently encountered IT management disease is micromyopia — the vision defect that appears when the manager is pressured for immediate cost cuts. Beware of outsourcing decisions when you can't see the value chain from the competitor's point of view. **45793**

ECONOMICS OF IT OUTSOURCING

ELEMENTS OF THE VALUE CHAIN	COSTS IN VALUE CHAIN	ESTIMATED INFORMATION COSTS	ESTIMATED IT COSTS
Assembly in China	$3	$1	$0.02
Parts from suppliers for China	$14	$3.50	$0.18
Corporate costs + profit	$8	$6	$0.66
Global distributors and retailers	$15	$10	$0.30
Total costs	$40	$20.50	$1.16
Percentage of retail price	100%	51%	3%

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MANAGEMENT

Think Tank

At a time when corporations are increasingly reliant on technology, boardrooms are seriously deficient in IT knowledge and experience, says a study by Burson-Marsteller. Plus, we take our monthly look at the IT economy. **Page 34**

Career Watch

A look at outsourcing's impact on IT jobs; more money for Cisco experts; and what matters most at private, fast-growth companies. **Page 36**

OPINION

Selecting New Leaders

Paul Glen says tech smarts, education and bossiness aren't good predictors of IT leadership success. Flexibility and the ability to communicate are much more important. **Page 37**

"We've lost the luxury of just focusing on a few things."

JOHN MOON, CIO, Baxter International Inc.

ANDY GOODWIN

THE Wide-Ranging CIO

The CIO's realm of responsibility and influence is expanding well beyond traditional IT boundaries.

BY JULIA KING

WHEN THE CEO, chief financial officer and other members of Accenture Ltd.'s partner income board meet to decide how the $1.4 billion consulting firm's profits should be divvied up each year, CIO Frank Modruson has both a seat at the table and a vote on the final disbursement.

In February, before executives at Juniper Networks Inc. signed a $4 billion deal to buy out NetScreen Technologies Inc., they sought the counsel of Juniper CIO Kim Perdikou. The reason: Perdikou had led much of the company's preacquisition due-diligence efforts.

And when $13 billion Humana Inc. makes a sales pitch to corporate customers — potentially worth millions in revenue to the health care and benefits giant — Humana CIO Bruce Goodman is a lead presenter.

Sure, corporate IT budgets may be flat overall and technology expenditures more heavily scrutinized than ever, but the CIO's role and influ-

BIRD'S-EYE VIEW

The CIO can bring a lot of skills, viewpoints and insights to the executive leadership team, according to a recent Gartner report.

The CIO

- **Is exposed to a very wide range of issues outside the IT area,** such as human resources policy, financial investment planning and change management. The issues also include relationships with external groups like customers, suppliers and, often, shareholders.
- **Must be master of a broad array of leadership styles,** because they're all needed to successfully steer a strategically important IT function. These range from focusing on firm cost control to enabling creativity in the enterprise.
- **Must have a wider perspective.** For a corporate CIO, this covers the entire enterprise. For a business-unit CIO, it covers all the activities of that business unit. In both cases, the CIO has the vitally important opportunity to identify synergies between organizational units.
- **Has a window into the drivers of the new economy.** Since most of these are IT-related, the CIO should have an excellent grip on this area.

SOURCE: GARTNER INC., STAMFORD, CONN., JANUARY 2004

THE OLD CIO WOULD BE RESPONSIBLE FOR CONNECTING THE SYSTEMS OF AN ACQUIRED COMPANY. TODAY, CIOs ARE BEING ASKED TO HELP GOVERN THOSE NEW ORGANIZATIONS.

JOHN MOON, CIO, BAXTER INTERNATIONAL INC.

ence are expanding well beyond the traditional boundaries of IT. Recent interviews with more than two-dozen top IT executives suggest that the job of CIO is significantly increasing in difficulty and complexity, so much so that one veteran CIO believes it may be too much for a single person to handle.

"The reality is that to be successful, a CIO must be able to do six things at once, and that's just not realistic," says Darwin John, who has held the CIO post at the FBI, the Church of Jesus Christ of Latter-day Saints and the former Scott Paper Co. In all three cases, John set up an office of the CIO that included a team of executives who focused on technology implementation and integration, prioritizing business and technology initiatives and providing top-notch project management.

"I have a belief that to be successful as a CIO, you need to allocate your time in thirds: one-third to minding the store, a third to working with major customers within the enterprise and the other third focused externally," says John, who continues to advise the FBI as well as Chicago-based Blackwell Consulting Services Inc.

"The role of CIO definitely isn't shrinking. It's changing," says Linda Pittenger, president of People^3 Inc., a Gartner Inc. company in Bridgewater, N.J. More than ever before, the role is externally focused on suppliers, customers and relationships across other corporate functions and business processes.

Here's a closer look at three CIOs who are ahead of the curve, having already assumed several roles and responsibilities far from the hum of the data center.

CIO AS PRODUCT INNOVATOR

Baxter International Inc. in Deerfield, Ill., designs, develops, manufactures and sells medical devices. As the company's CIO, John Moon was once fully engaged in what he calls "the ERP extravaganza," but not anymore. Moon's primary responsibilities these days are directly tied to the bottom line. Among them is helping product engineers figure out how to best incorporate Internet-based intelligence and communications capabilities into Baxter's line of medication pumps, dialysis equipment and other medical devices, which represent 66% of the $8 billion company's business.

"You've seen commercials about refrigerators and microwaves being connected to the Web. We're doing the same thing with medical devices," says Moon. One recent example is Baxter's home renal-dialysis machine that electronically tracks a patient's treatment compliance and transmits the data back to a physician. The device is built around some of the same network technology Baxter uses internally for its own operations.

Once the devices are developed, Moon shifts into the role of negotiator and deal-maker. "I personally meet with clinical software vendors to talk about joint ventures. We're also involved with collaborating with customers in connecting to devices in their unique LAN environments," he says. This regularly places Moon in the boardroom with some of Baxter's biggest customers.

HEAD OF THE CLASS

SCAN THE DAILY CALENDAR OF Temple University IT chief Tim O'Rourke, and you're just as likely to find him meeting with a classroom renovation crew as with an IT project team. He might also be meeting with a faculty committee that's designing and updating course content.

The reason: "Technology has gotten into every aspect of what we do here," says O'Rourke, whose official title is vice president for computer and information services at the 33,000-student university in Philadelphia.

Blackboard, the university's ubiquitous, Web-based course management system, is a prime example, he says. Students can use the online system to retrieve professors' lecture notes and assignments, plus work on projects in online groups. "Five years ago, we had 11 courses on Blackboard," O'Rourke says. "Now we have 5,000 courses on Blackboard, so it has become a critical system."

One of O'Rourke's key responsibilities is working with professors to leverage the Blackboard system in cost-effective ways, such as designing course content and assignments to include a minimal amount of downloading and printing, which the university has provided free of charge to students.

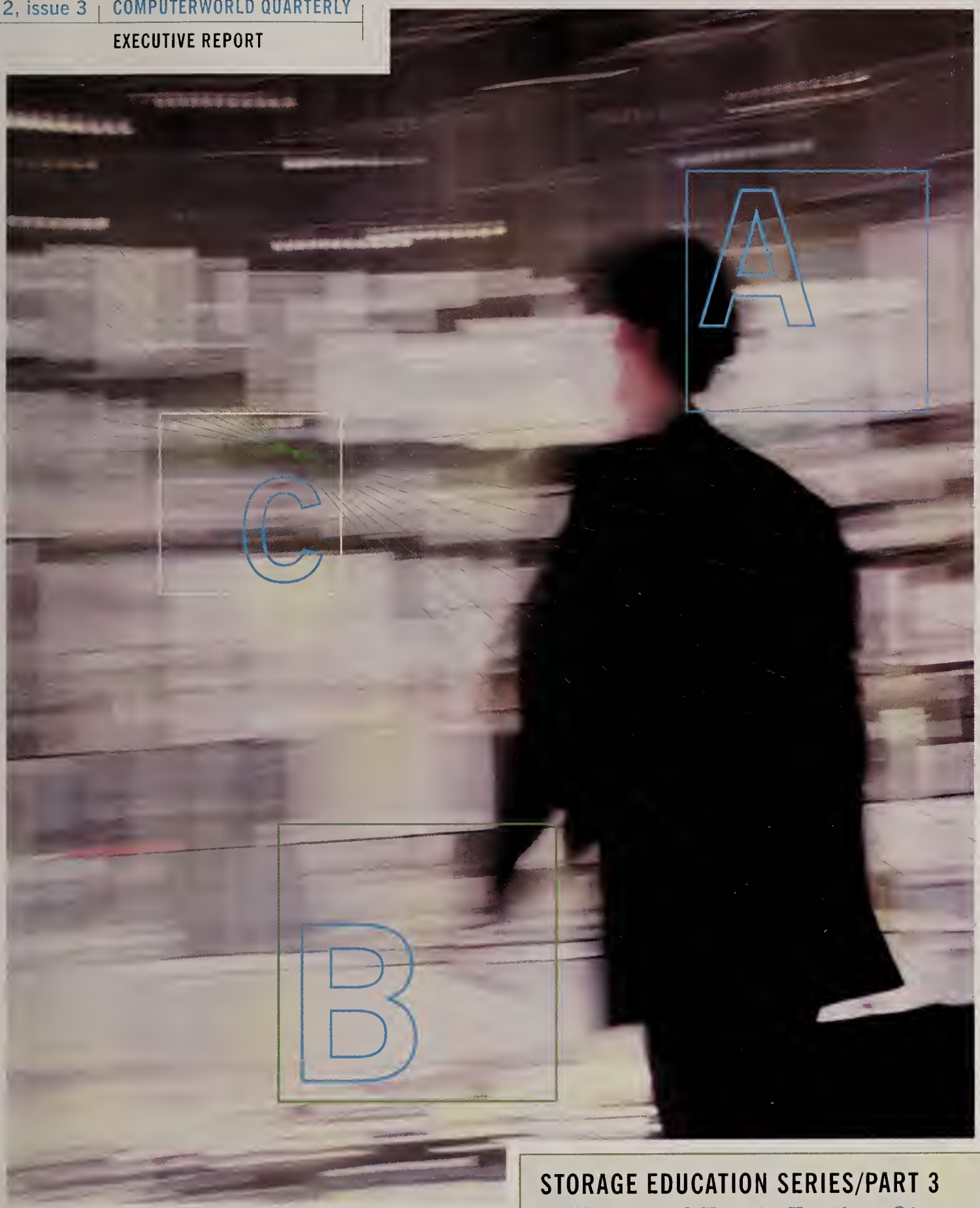
"As Blackboard and the Internet become more heavily used, it's nothing for a faculty member to tell a student to go to the Web and print out a report and bring it to class. But one of the big problems now is when you print 6 [million] or 7 million pages, it's a very expensive proposition," he says.

In the classroom, virtually all of Temple's professors employ digital technology, "so I'm also very involved in the physical layout and construction of classrooms," O'Rourke says. In addition, he's closely studying how students' study habits are changing and the effect those changes will have on the campus's physical and digital infrastructure. "For example, students don't go to the library to study anymore; they go to the computer lab, and even though 80% of students have their own PCs, they don't want to study in their dorm rooms. That means looking at building additional computer labs to handle the changing habits," he says.

"The faculty and administration here understand the impact of technology, and they use [the CIO and IT the department] as a resource. It's our job to let them know all of the ramifications," O'Rourke says.

– *Julia Kir*

v.12, issue 3 | COMPUTERWORLD QUARTERLY
EXECUTIVE REPORT



STORAGE EDUCATION SERIES/PART 3

A Matter of Trust: Testing Storage

COMPUTERWORLD

STORAGE EDUCATION SERIES | by Jon William Toigo

Part 3/ A Matter of Trust: Testing Storage

The IT manager for a large bank recently approached my firm with a deceptively simple service request. His company was working to build a new data protection capability, and he had created a requirements specification and request for proposal (RFP) to solicit input from several "brand name" storage product vendors.

Each vendor had responded with a substantial document mapping the functional requirements in the RFP to their solution components. But, selecting between them ultimately came down to a matter of trust. There was nothing to guarantee any of the proposed configurations would work, and precious little reliable data to differentiate one solution from another.

The IT manager explained how he had adopted a credo of "Never Trust Nobody" when it came to data storage technology – an attitude he deemed appropriate to the "Wild West" nature of the storage industry today. He noted the lack of meaningful standards in storage technology generally, and of reliable performance metrics in particular, "Combined with the near total absence of relevant test data on most storage products in the market, many companies have learned the hard way that the storage solutions they purchase rarely look or act anything like the pretty pictures and exciting narrative offered in vendor brochures." He said he did not want his company to join this disappointed group.

His problem was he had no means to validate claims made by any of the vendors regarding the performance of their offerings, or the purported superiority of one solution over another. As was the case in many companies, budgetary cutbacks had eliminated his testing laboratory, and staff resources for testing were in short supply.

To their credit, he said, certain vendors had offered a "try-before-you-buy" scenario to facilitate the deal. He wondered whether he could divert all of the products to my test lab and provide his application workload to perform a valid "comparison test" of the offerings. Could some sort of testing be performed that would give him a better idea of which platform offered the most "bang for the buck?"

Bottom line: The IT manager saw testing as the path to truth that he could not get anywhere else – not from vendors, not from analysts "who worked for the vendors," and not even from generic comparisons offered in the trade press. In a request that is being consistently repeated these days, the man sought an outside testing agent to validate the vendor offering.

The lack of internal testing facilities and resources is increasingly common in companies that do not regard IT as a core business. "Storage is usually regarded as a cost of doing business and not as a profit center," says Mike Linett, President of Newark, DE-based network storage engineering firm, Zerowait. "Where infrastructure is regarded as a profit center, chances are better that a company will have a test lab where they can do head-to-head testing."

This view is echoed by Mark Freidman, long time performance engineering consultant and now General Manager and Vice President of DataCore Software in Fort Lauderdale, FL. According to Friedman, a lack of internal test facilities is seeing many firms deploy storage solutions with no method for validating functionality before they are placed into production. Key to validating storage solutions, he says, are tools enabling the characterization of a real world workload – plus, time and personnel that are both in short supply "except in companies where IT is viewed as strategic."

The testing dilemma is at the heart of the current tension between business and IT. At a time when budget controls are tight and

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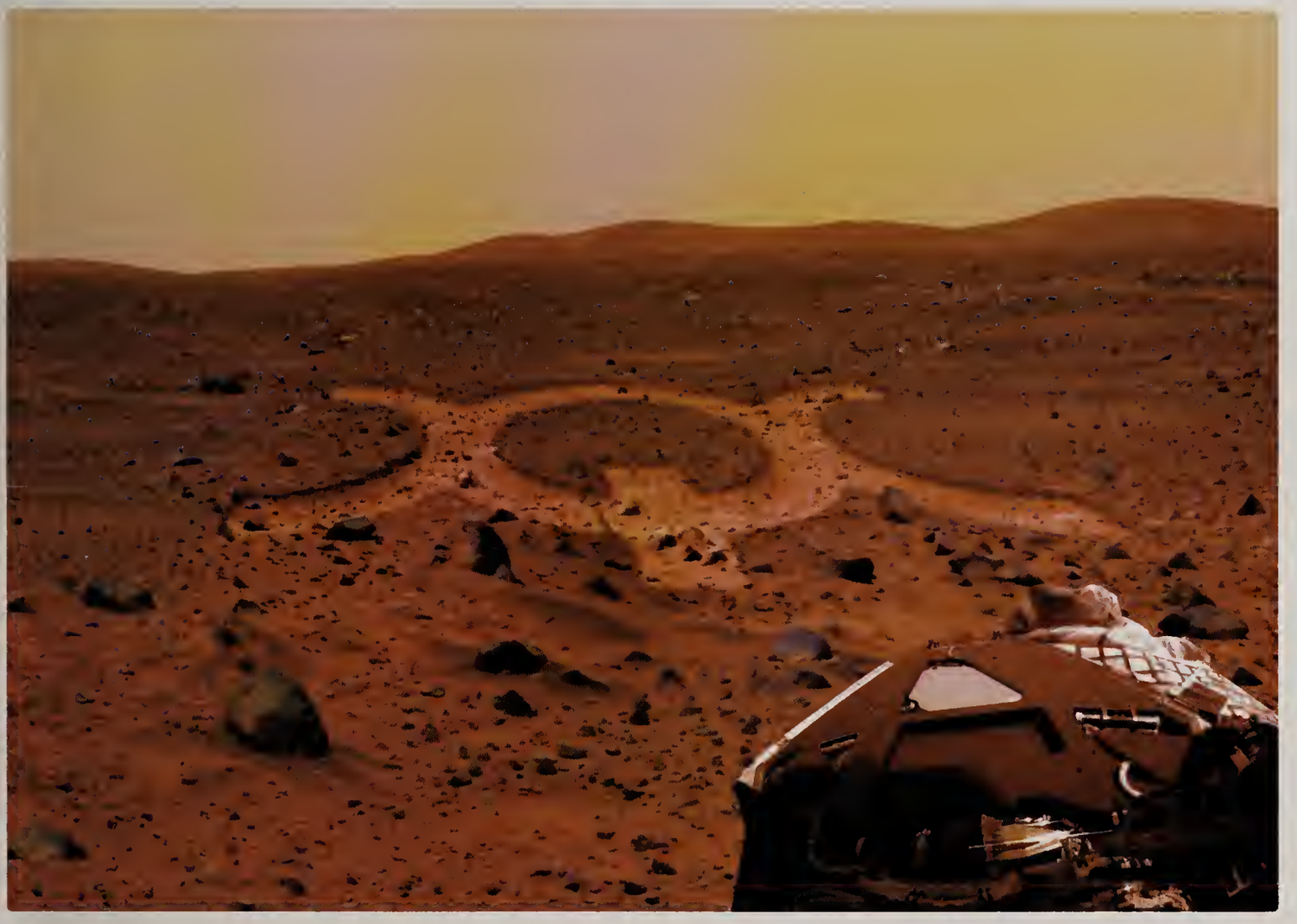

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"do more with less" has become the corporate mantra, the margin for error in IT acquisition decisions is slim. The pressure is on IT to make good technology choices that deliver promised business value in the shortest possible timeframe.

Storage technology, which accounts on average for 60 to 70 cents of every dollar spent on IT hardware, is no exception. However, unlike servers, networks and other infrastructure components, storage technology presents a dearth of reliable performance information with which to support intelligent decision-making.

Setting the Stage

Vendors of storage-related technologies are in no short supply – from large companies to a host of smaller firms offering everything from generic "white box" arrays to specialized platforms tuned to the very particular needs of specific vertical markets. Such diversity is a good thing when it provides IT managers with options for solving business problems with appropriate technology. And, healthy competition between vendors has the value-add of forcing prices down for storage.

Vendors have only recently begun to work on defining standard metrics to be reported by their equipment to facilitate effective performance monitoring – a prerequisite for true utility storage.

Nowhere is the price reduction benefit as apparent as it is in storage. The observation has been made by many industry analysts that, since the mid 1990's, the capacity of disk drives has increased at a rate of about 120 percent every 18 months, while the cost of disk on a per GB basis has declined by 50% per year. These trends underscore both the advantages of vendor competition and the increasing commoditization of disk technology.

On the other hand, disk drives alone do not a storage infrastructure make. Disks are increasingly aggregated into arrays, and arrays are increasingly aggregated into Fibre Channel fabrics or iSCSI SANs, or equipped with thin server operating systems and attached to networks, or joined together into scalable clusters in order to meet the burgeoning data flood that has not abated despite a slower economy.

All the extra gear and software added around the disk drive creates a so-called "intelligent storage subsystem" that, in spite of its increasingly commoditized spinning parts, continues to drive costs of storage "solutions" skyward for virtually every storage consumer. This trend was confirmed several years ago by a former CEO with EMC Corporation, who said there was virtually no difference between his company's products and those of his closest competitor: "At the end of the day, we are both selling a box of Seagate hard drives." The only remaining differentiator (and what accounted for the sticker shock associated with his (and everyone else's high end arrays) was software.

Vendors increasingly price their gear based on software-based features added to improve the performance, resiliency or security of their box of disk drives. These features may include special RAID capabilities, internal point-in-time mirroring capabilities, special cache memory designs and caching algorithms, synchronous and asynchronous cross-array mirroring capabilities, support for a number of connectivity options, and other "intelligence" enhancements.

While vendor marketing materials cast these features as "key differentiators" of their products and as sources of important business value to the consumer, such enhancements also serve vendor self-interests. The "intelligence" in intelligent storage subsystems helps to extract a higher profit margin for vendors and their resellers – special features to lock consumers into purchasing technology only from that vendor, or its cadre of partners. And perhaps most importantly, enhancements enable vendors to argue their platforms cannot be effectively compared to competitor platforms on an "apples-to-apples basis."

Platform diversity is thus a two-edged sword. On the one hand, it provides a rich set of options from which to choose a business data storage solution. On the other, it exacerbates the problem of making an effective choice from among several options, and may well increase the likelihood of making a poor one.

The Need for Testing

What is missing in the storage world is an objective standards-based testing capability – an Underwriters Testing Laboratory – that can certify the performance of a given platform in terms that are meaningful to business and IT planners. In the absence of such test data, there is no convenient way to compare the costs and benefits of the status quo storage infrastructure with a modified infrastructure using the proposed products of a vendor. In addition, without comparative data, there is no way to predict Return on Investment, payback intervals, or total cost of ownership differentials with any degree of certainty.

Vendors have only recently begun to work on defining standard metrics to be reported by their equipment to facilitate effective performance monitoring – a prerequisite for true utility storage. Freidman notes a primordial effort is underway within the Storage Networking Industry Association (SNIA) to define standards-based performance metrics. In addition, organizations such as the non-profit Standard Performance Evaluation Corporation (SPEC) and the Storage Performance Council (SPC), have sought to create benchmarks to describe storage equipment performance. SPEC, with its SPECsfs benchmark, focuses primarily on Network File System (NFS)-mounted disk (NAS and server-attached storage accessed via the NFS protocol), while SPC has emphasized block-based protocol access and the performance of hardware under certain types of application loads (mostly messaging systems).

These approaches have value as a means for comparing the storage solutions of different vendors under a common, pre-defined, set of criteria. Also important is the methodology for conducting tests is well-defined by these groups and must be observed to the letter by any vendor seeking to have its results "certified" by the brokers of the test specification. On the other hand, both SPEC and SPC tests fall prey to two key problems endemic to virtually all benchmarking regimens.

For one, the benchmarks test specific workloads under rarified conditions. SPC, for example, tests reads and writes sequentially and at random using a well-defined application workload that simulates a specific messaging application such as Exchange or Lotus Notes. The test results are only valid insofar as they mirror the real world application and workload that a consumer might have in his or her own shop. If the consumer is operating an application other than the one characterized in the SPC benchmark, the results of SPC testing may have limited utility.

The other problem is benchmark testing leads inevitably to what industry insiders call "benchmark engineering." The latter amounts to the practice of tuning test gear to deliver great results under a particular benchmark testing regimen, but in a way that would not be done in a real world deployment. SPEC provides hints for improving benchmark results, such as increasing memory resources for file systems and inodes, using non-volatile RAM to spoof write requests, or segmenting LANs to reduce bandwidth saturation. All are cited as means to an end: a glorious benchmark result – though not necessarily replicable in the real world.

Taken together, these problems limit the efficacy of benchmark results as a guide to solution selection. Moreover, whether limited by test design constraints or benchmark engineering, benchmarks have yet to earn the trust of many consumers.

Toward a Common-Sense Testing Methodology

Viewed from the standpoint of information utility or efficacy, a taxonomy (Figure 1) of testing methods and data can be discerned.

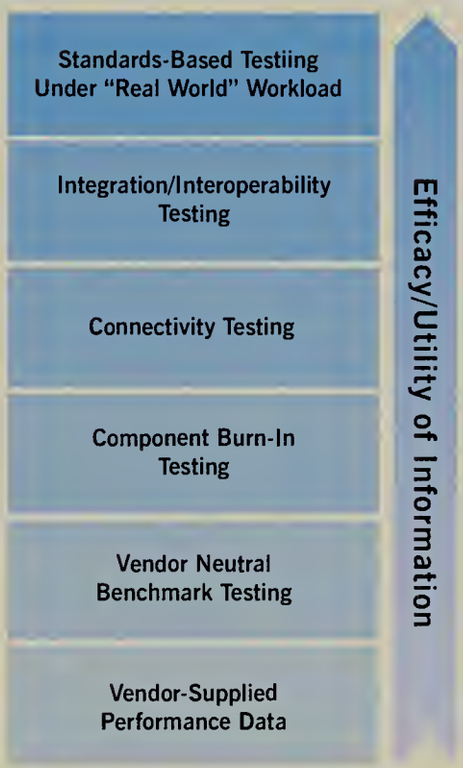

Figure 1: A Simple Taxonomy of Test Data arranged by Decision-Making Efficacy.
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As shown in Figure 1, vendor-supplied performance data, delivered without reference to specifications or methodology is the least useful in discerning the value or appropriateness of a technology to a specific application. This goes for test results from

research and analysis shops as well – especially where testing has been commissioned by the vendor, and the results posted by the R&A organization do not describe specific testing criteria or standards.

Vendor-neutral testing by organizations, such as SPEC or SPC, has the added value of requiring vendor conformance to a specific methodology and workload description. However, these test results may have limited utility owing to the characteristics of the workload and the use of benchmark engineering by the vendor.

Component burn-in is an essential test to ensure storage devices have not been damaged during shipment. Connectivity tests ensure devices will plug into one another and recognize each other's existence.

Interoperability tests are critically important, as they demonstrate the higher level interoperation of devices in fulfillment of a specific task or function. Standards for Fibre Channel switch interoperability, for example, have sufficient "wiggle room" to enable multiple vendors to develop switches that will not work together in the same fabric despite the fact each switch is fully standards-compliant. Interoperability testing is what must be done in the absence of airtight standards.

Integration testing is part of interoperability testing and is performed to ensure higher order functionality, above the level of I/O transport, can be accomplished using the newly-designed storage infrastructure. Data replication processes, storage virtualization processes, backup and restore processes, capacity allocation and deallocation processes, and a host of other data management processes need to be tested across the collective platform to confirm both these processes can be undertaken successfully on an individual basis and also in concert without conflict. For example, if a backup/restore software product from vendor A is not "aware" of a storage virtualization product from vendor B, the result may be restore processes that require an inordinate amount of time to complete (for example, a 1Terrabyte dataset requiring over 100 hours to complete). Integration testing needs to be conducted to ferret out any hidden functional limitations of the solution.

Finally, the most useful type of information comes from standards-based testing conducted by the consumer using well-defined standards-based testing methodology and real-world workload. The closer the actual test bed comes to real life, the more accurate and informative the test results will be.

Performance Language Objectives for Testing

Standards-based testing under real application workload requires significant effort. Not only must equipment be installed and subjected to component burn-in, connectivity and interoperability/integration testing, it must then be connected to a surrogate workload generated to represent actual client/server traffic.

For workload simulation, some storage testing experts recommend toolsets such as Mercury Interactive's Performance Center. However, for the budget challenged, workload can be emulated in a variety of ways using various downloadable utilities, databases, and other drivers. At a minimum, you will need to know the block sizes of application data, read/write ratios associated with particular application data in your current environment, and distances between initiators and targets if data requests and responses traverse IP networks.

Perhaps more importantly in the current "do more with less" business climate is the role of testing in validating the business value case presented to management to support a technology acquisition.

Your local chapter of the Computer Measurement Group (CMG.org) may provide access to folks who know the tricks of the trade in workload simulation. You can also learn from studying the published specifications of SPEC and SPC: in essence, you will be customizing their tests of sequential and randomized reads and writes to reflect your own applications and their specific workloads.

It is best to map out the test objectives before you perform the test so it can be repeated across multiple platforms and multiple applications. In forming

objectives, performance language syntax may be of use. Performance language-based objectives describe conditions, tasks and standards for each test to be performed.

- Condition – includes a list of all resources to be used in performing the test. These may include a qualified workload sample, HBA, switch and storage device type(s), an interconnect (wiring) description, and a summary of the performance measurement(s) to be taken and the means by which they will be measured.
- Task – describes the test that will be undertaken, possibly adding a timeframe for the test and other execution parameters.
- Standards – consists of a description of the criteria (typically from the RFP) that will be used to evaluate the test and its results.

A simple example of a standards-based test objective stated in performance language is as follows:

- Conditions – "Given a vendor XYZ network attached storage array loaded with 2 TB of file-based data of different block sizes, a workload simulation of 200 end users referencing stored documents at random, a 100 BaseT Ethernet network interconnect between the simulator and the NAS array, and a requirement to test and measure response time to randomized requests over a two hour timeframe using XYZ product for I/O roundtrip measurement,"
- Task – "the tester will initiate the measurement tool and workload simulation, marking the start time, and shut down the simulation and measurement tool after 120 minutes of operation, and generate a test report totaling average random access times"
- Standard – "that conforms to the standard format set forth for comparative testing in the requirements specification document."

While performance language-based test specifications might sound a bit stilted, the structure provides an effective way to capture the details of a test so it can be used and reused to provide the basis for apples-to-apples comparisons between different products. Ideally, testing objectives should derive from a requirements specification document often created in conjunction with a Request for Proposal. Such a linking of documents – requirements specification to RFP to test reports – provides a convenient way to compare performance metrics gleaned from testing with vendor-promised performance.

Taken together, the performance language objectives comprise a testing methodology that can be applied to the comparison of two or more storage infrastructure alternatives. Objectives can be formulated to provide discrete or isolated tests of storage software components or specific storage networking devices (such as different Fibre Channel switches) operating across an otherwise static storage infrastructure.

The technique is very flexible and requires of planners only that they know 1) what comprises the real world workload associated with a specific application, 2) what kinds of test results would be relevant or useful to advise decisions, and 3) what kind of test can provide the desired results in the most expedient and cost-effective manner.

The Bottom Line

Like dental flossing, storage performance testing is something everyone ought to do but most tend to avoid. Even in IT departments where test facilities continue to exist, the amount of actual testing prior to acquisition tends to be minimal. In the final analysis, conducting pre-deployment tests and publishing results would go a long way toward improving storage acquisition decision-making.

Perhaps more importantly in the current "do more with less" business climate is the role of testing in validating the business value case presented to management to support a technology acquisition. IT professionals must frame acquisition requests in business terms: an expected cost-savings accrued to a proposed acquisition will offset its acquisition price within X months (payback), or an investment in this technology will deliver an internal rate of return based on cost savings, risk reduction or new business enablement of a certain percent over a specified period of months (ROI). None of these assertions can be made with confidence in the absence of performance data derived from testing that compares the current infrastructure with the infrastructure enhanced with the proposed technology.

One last point to keep in mind about testing: performance is only one criterion to consider when making intelligent storage technology acquisitions. In many cases, certain features and functions such as management or data protection, not to mention price, may also factor prominently in decision-making. However, effective performance-based testing remains the only chance you have of getting what you pay for in storage technology.

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Moon is also one of the few CIOs who sits on the board of directors of Global Healthcare Exchange LLC, the health care industry's largest online business-to-business exchange [QuickLink 44038]. Baxter is an equity stakeholder, along with competitors Johnson & Johnson, Medtronic Inc. and GE Medical Systems. This year, the exchange is projected to process transactions valued at more than $3.5 billion. The exchange's key goal is to leverage the Internet and electronic ordering to reduce supply chain costs, which represent a hospital's second largest expense after personnel costs, Moon says.

As for how the CIO's role is changing, Moon sums it up this way: "We've lost the luxury of just focusing on a few things." Today's CIO is just as likely to be involved in merger and acquisition discussions and new-product development meetings as the chief financial officer or chief operating officer, he says.

"The old CIO would be responsible for connecting the systems of an acquired company," Moon says. "Today, CIOs are being asked to help govern those new organizations."

CIO AS EFFICIENCY EXPERT

In addition to 250 IT professionals, a $55 million annual IT budget and all technology and network operations at William Beaumont Hospital in Royal Oak, Mich., Paul Peabody is directly responsible for $1.5 billion per year in patient billings and 325 accounting workers who previously reported to the corporate controller of the 1,000-bed hospital. "We're going to make some very big changes as we implement new revenue systems, so it makes a lot of sense for me to have responsibility for both areas," says Peabody, who has held the hospital's CIO post for 24 years. "Most hospitals are 2% to 5% inefficient in realizing the full revenue due to them. Billing in health care is very difficult with so many rules. You really need good systems to do it right."

Hospital officials learned firsthand the value of tightly linking the CIO to business process changes in 1999, when the hospital implemented new financial systems with an eye toward reducing supply chain complexities and costs. Peabody, who led the project, hired several industrial engineers to work with IT to identify and streamline each step in the complicated supply chain process before configuring software the hospital had purchased from Oracle Corp.

Among other things, they had suppliers deliver goods directly to nursing stations, allowing the hospital to eliminate its warehouse. Beaumont also signed on with a group purchasing organization to electronically handle orders with smaller and specialty suppliers still using costly and time-consuming manual ordering processes. Together, these and other changes have so far yielded savings of close to $25 million; Peabody says he believes he can boost that figure to $20 million to $30 million annually.

"That's the kind of reduction in expenses that can really improve your bottom line," he says.

Peabody has since added eight industrial engineers to the hospital's permanent IT staff and placed them on every IT project. "We look at our processes, best practices, then do a gap analysis before making any changes" to processes or systems, he says.

The role of IT and today's CIO is that of a "change agent," says Peabody, who reports to the hospital's COO. "Our job is to understand how something works and make it operate more efficiently, and our responsibility is directly to the bottom line."

CIO AS ENTREPRENEUR

Goodman joined Louisville, Ky.-based Humana in 1999 as senior vice president and CIO. In 2002, his title was changed to chief service and information officer and his responsibilities grew to include all of IT plus virtually all administrative operations, from billing and enrollment to provider affairs and quality management.

"One of the biggest opportunities for leveraging IT in a company like ours is to make the clerical operations more efficient," says Goodman, who reports directly to the CEO. "Having total responsibility for those dollars plus IT puts you on both ends of the equation."

In his expanded role, Goodman has been the driving force behind a unique joint venture with a direct competitor, Blue Cross and Blue Shield of Florida Inc. Together, the companies set up Availity LLC, which offers an Internet portal that enables health care providers to use a single online system — free of charge — to file for reimbursements from multiple insurers.

Since its launch in February 2002, the portal has registered more than 25,000 physicians at 9,500 health care practices and 208 hospitals in Florida. It processes about 3 million transactions a month. In the past two years, Availity has added Aetna Inc., Cigna Corp. and several local and regional insurers to its online claims-processing service.

One of Goodman's other nontraditional CIO roles is that of external salesman. Because of what he calls "a story of IT enablement around the changing model of health care," he is often the best person to explain Humana's unique offerings, which include a set of software wizards to help companies and employees choose the health plans that best suit them.

"I also present to investment analysts, covering what's happening with IT and our operations, and I get involved in government affairs, promoting legislation that will streamline costs to all stakeholders in health care," Goodman adds.

The bottom line: "Yes, the CIO role is definitely expanding," he says. "It has to because so much of our operating model depends on IT to enable it."

45635

CIOs are assuming leading roles in the following areas:

- Business process analysis and change
- Regulatory compliance
- New product development
- Project management outside of IT
- Billing, accounts receivable

CIOs EMERGE AS CHIEF PROCESS OFFICERS

Studying and streamlining each and every move a company makes en route to the bottom line is becoming a bigger part of the CIO's job description.

Jeff Campbell, CIO at The Burlington Northern and Santa Fe Railroad Co., is in the midst of a major non-IT project to re-engineer how the railroad uses its 33,000 miles of track to move freight. The goal, he says, is to improve velocity, increase revenue and reduce costs. Before that, Campbell led the project to re-engineer and reduce the costs involved with BNSF's procurement process.

PERDIKOU

At Juniper Networks, CIO Kim Perdikou just kicked off a major business-process analysis project focused on the thousands of cross-functional steps involved in the customer, partner and employee life cycles.

At Baxter International, CIO John Moon led the effort to establish a standard process for integrating newly acquired companies into Baxter. The health care company typically acquires three or four companies per year.

"It used to be that each acquisition was a single and unique event," Moon says. "Now we've developed a standard process for due diligence and evaluating [potential] acquisitions." Once a target company is acquired, Baxter also has a documented and repeatable 60-day plan for integrating new employees and sites into its voice mail, e-mail and human resources systems.

"One of IT's core strengths is a real systematic, process orientation," Moon notes, adding that "companies are beginning to see how extensively that can be leveraged to gain efficiencies outside of pure technology."

– Julia King

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

No Seat in the Boardroom

AT A TIME WHEN corporations are increasingly reliant on technology, boardrooms are seriously deficient in IT knowledge and experience. Only 5% of the world's largest companies have CIOs on their boards of directors, reports a study by communications consultancy Burson-Marsteller in New York.

The study analyzes all Fortune Global 500 companies that release board-member biographical information. Only 15 of these 313 companies have CIOs on their boards, and they're often companies with headquarters in Europe or Asia.

"Most of the world's largest companies are not receiving board-level strategic advice on how technology can address current and future business problems," laments Heidi Sinclair, chairman of Burson-Marsteller's global technology practice.

Companies with current or former CIOs on their boards include Canon Inc., Delphi Corp., DuPont Co., Gap Inc., GUS PLC, Mitsubishi Corp., Philips Electronics NV, Sharp Corp., Tesco PLC and Wal-Mart Stores Inc., according to the study.

Analysis of the 15 companies with CIO board members shows that after the appointment of an IT-related director, these companies delivered annual returns 6.4% above industry averages. The financial gains can be attributed to many factors, but the study suggests that superior companies benefit from having an IT-savvy director.

"In their search for directors," Sinclair concludes, "forward-thinking boards need to look beyond extraordinary financial, managerial and legal experience and give equal weight to technology experience."

– Mitch Betts

Best Bits

The most useful parts of recent business and IT management books:

THE BOOK: ***Blissful Data,*** by Margaret Y. Chu (Amacom, 2004).

I doubt the term *blissful data* will catch on — somehow I imagine chads floating dreamily in swirls of marijuana smoke — but Chu defines it as accurate, meaningful data that's accessible to all employees. Sort of a data nirvana.

For a general business audience, this easygoing book does a good job of explaining data marts, data warehouses, business rules, metadata, data modeling and integration.

One of the most useful sections deals not with blissful data but with "dirty" data, defined as "incomplete, invalid or inaccurate" data values. If you're fighting the data quality battle in your organization, show business managers Chapter 4 for the discussion of how contradictory data, inconsistent naming conventions and cryptic codes can foul up any data warehouse and produce bad business decisions. Chu also points out that company politics play a major role, because "people tend to hide their dirty data problems, are reluctant to share data and are ready to blame others for dirty data issues."

— Mitch Betts

Things to Ponder

■ **In a Gartner Inc. weblog, analyst Rich Mogull points out that the Sarbanes-Oxley Act doesn't regulate corporate intelligence;** it merely regulates internal controls and financial reporting. "Companies can take as much risk as they want, make as many poor decisions as they want and lose as much money as they want," he says. "They just have to report exactly how much they're losing in enough time for shareholders to know that management is making dumb mistakes."

■ **Companies with world-class payroll operations can cut payroll costs per employee by up to 70%,** according to research by The Hackett Group, a unit of Answerthink Inc. The key is adopting best practices such as reducing the number of pay and time codes and simplifying processes by eliminating unnecessary layers of review.

Customer-Friendliness

These insurance companies scored highest in online customer respect, measured by ease of navigation, respect for privacy, responsiveness and other metrics.

1. Cincinnati Financial Corp.
2. Minnesota Life Insurance Co.
3. American International Group Inc.
4. Liberty Mutual Insurance Corp.
5. Pacific Life Corp.

SOURCE: THE CUSTOMER RESPECT GROUP INC., BELLEVUE, WASH., FEBRUARY 2004

GOT ANY BRIGHT IDEAS? *Send them to pitches@computerworld.com.*

The IT Economy

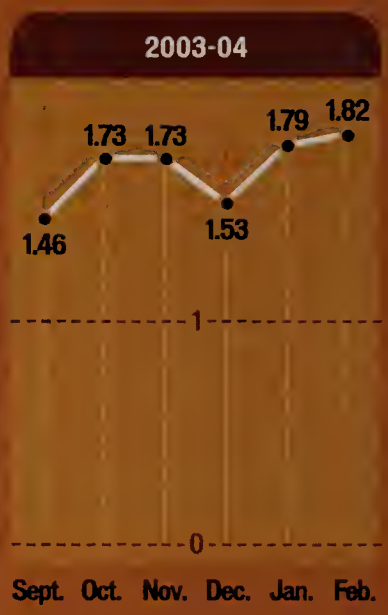
■ **Document and content management software is suddenly ranking as a high priority for IT spending,** probably because of Sarbanes-Oxley Act requirements, according to a survey of 50 U.S. CIOs by Merrill Lynch & Co. Other high-ranking software categories are security, corporate portals, business intelligence, ERP, application integration and storage, the CIOs reported.

■ **Retailers are increasing their IT spending by more than 9% this year,** the most dramatic increase since the invention of bar-code scanners, says AMR Research Inc. in Boston.

■ **Chief financial officers at the nation's hospitals predict a big, 14% leap in capital spending this year** to fix deteriorating facilities and upgrade technology, according to a survey of 460 hospital CFOs by the Healthcare Financial Management Association. The highest technology priorities are digital radiology systems, physician order entry systems and major IT systems.

Corporate Technology Confidence Index

The index edged upward in February because of optimism about IT spending and hiring in the coming months.



BASE: 212 corporate IT buyers. An above-zero score indicates more positive responses than negative.

SOURCE: TECH-ECONOMY.ORG, STANFORD, CALIF.

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Career Watch

OUTTAKES

A roundup of news and notes about outsourcing's impact on IT jobs.

■ **IF IBM PLANS** to add 5,000 jobs in the U.S. this year but move 3,000 U.S. jobs offshore, that still means 2,000 new domestic jobs. Right? Not exactly, according to *The Wall Street Journal,* which points out that IBM's U.S. outsourcing activities, which typically include hiring computer professionals from client companies such as J.P. Morgan Chase & Co. and Fluor Corp., work to blur the math. "Often, IBM ends up laying off some of the workers it hires from [U.S.-based] outsourcing clients as it makes the acquired operations more efficient," the *Journal* notes. Also, the transferred jobs aren't new IT jobs but instead represent a shift in employers. IBM says domestic outsourcing currently brings in about $15 billion a year, representing 17% of its revenue and much of its growth prospects.

■ **OUTSOURCING MAY BE** at an all-time high, but IT professionals working for U.S. outsourcing companies may also be facing a higher-than-average risk of job loss, according to Ravi Kalakota and Marcia Robinson, authors of *Offshore Outsourcing: Business Models, ROI and Best Practices* (Mivar Press Inc., 2004). The reason: "Outsourcing firms like Accenture, Convergys, IBM and HP are the most aggressive in migrating offshore. Expect to see more outsourcing companies execute offshore outsourcing under the label of global or blended outsourcing. If you work for any of these firms, you need to evaluate your job to see whether it's a potential candidate for offshore substitution," the authors say. **45624**

Numbers Crunch

57%	Percentage of Cisco Certified Internetworking Experts (CCIE) who reported receiving a raise in the past 12 months
$4,875	Average raise received by CCIEs reporting a pay increase
16%	Percentage increase in IT postings since Jan. 1 on Internet job board Dice.com
46%	Percentage increase in postings for .Net skills since Jan. 1

SOURCES: TCPmag.com and The Dice Report, March 2004

Keys to Success

What are the most critical factors for success over the next 12 months?

1	Retention of key workers
2	Flexible business strategies
3	Partnering with others
4	Getting more from IT
5	Increased available funding

BASE: 387 CEOs of privately held, fast-growth U.S. companies
SOURCE: PricewaterhouseCoopers, New York, March 2004

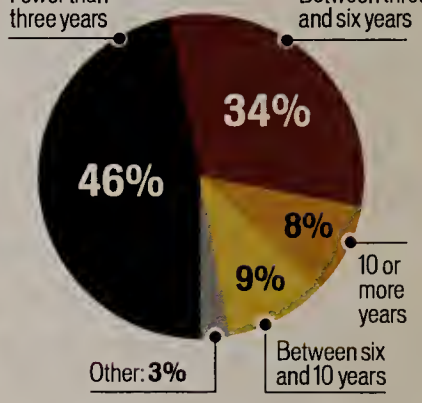
CIO Pay

INDUSTRY	AVERAGE COMPENSATION
Insurance	$223k
Finance	$220k
Computer-related	$209k
Manufacturing	$176k
Education	$126k
Government	$120k
Average of all CIOs' total compensation*	$186k

*Compensation includes base salary, bonus and stock options

CIO Tenure

How long have you been in your current position?



SOURCE: *CIO* magazine, 2003-04 **BASE:** 539 heads of IT

Live! From Online! IT Training!

BARRY KAUFMAN, chief technology officer and founder of Intense School Inc. in Ft. Lauderdale, Fla., says the future of technology training is online because it's low-cost and "a step above classroom training." Not surprisingly, then, his company has revamped and renamed its training and certification program to take advantage of online, asynchronous education opportunities.

The school offers training and certification programs for a variety of Microsoft products, Cisco technology, security systems and voice over IP. Classes are broken up into 3.5-hour modules. Kaufman says each class runs at least twice a week because "flexibility is key for training these days. You've got to be able to offer courses during the day, at night and on weekends."

Live, online training makes sense for those on tight budgets, Kaufman says. "You're not paying United and Marriott out of your training budget," he says.

The training includes a lab with multiple network segments that simulate various production environments. Students can quickly apply what they learn through online materials to walk through systems operations on live systems.

Training budgets may be crimped, Kaufman says, "but you can't sustain IT systems over time without training. You always need it."

– Mark Hall

SPLINTERED CONFIDENCE

CEOs and CIOs are out of sync on the confidence meter.

A February poll of 182 CEOs by *Chief Executive* magazine shows CEO confidence down by 5% from January, the steepest decline since early 2003.

CIOs, meanwhile, are more optimistic. Of 112 CIOs polled by Forrester Research Inc. in March, 66% expect their companies and industries to improve in the next three quarters.

But don't expect an uptick in IT hiring. Despite overall optimism, 56% of CIOs are sticking to their budgets and 19% plan to spend below their annual IT budgets.

BRIEFS

Gateway Names Lee Senior VP of IT

Gateway Inc. announced its new senior management team following the completion of its acquisition of eMachines Inc. in March and named Andy Lee senior vice president of IT. Lee was formerly CEO of Alorica Inc., a software outsourcer that worked closely with eMachines. Former eMachines CEO Wayne Inouye took over the roles of president and CEO from Gateway founder Ted Waitt, who will remain as chairman at the PC vendor.

Pierce Moves Up At Genentech

Genentech Inc., a biotechnology company in South San Francisco, last week announced the promotion of Todd Pierce to vice president of corporate IT. Pierce, who has been managing the IT group, will also chair the IT Strategy Council at Genentech, a cross-functional team of executives that coordinates and sets direction for the company's IT activities.

Pentagon Unit Cited for Innovation

The U.S. Department of Defense's Defense Finance and Accounting Service won the fifth annual Accenture Ltd. and MIT Federal Government Innovator award for technology that delivers public-sector value. The prize recognized myPay, a Web-based system that provides payroll information to military personnel.

Vendor Offers 'PMO in a Box'

Project Management Solutions Inc., a consulting, training and research firm in Havertown, Pa., has launched a new service to help companies quickly establish and maintain best practices in their project management offices. Depending on the needs of the customer, the PMO in a Box service may include people, processes and technology.

PAUL GLEN

Selecting New IT Leaders

ONE OF THE great privileges and responsibilities of leadership is identifying and training the next generation of managers and leaders. Somewhere in between crisis management, contract negotiations, internal politics, status monitoring and your myriad other tasks, you should spend a few moments considering the future leadership of your organization.

Figuring out who has the potential to become a great leader or middle manager of IT is difficult. Given that leadership is one of those things that most of us can identify when it's put before us but find difficult to describe, it often seems impossible to predict an individual's prospects.

There are traits that can be predictors of success. But before we dive into what to look for, let's put to rest a few of the commonly used criteria that haven't yielded stellar results.

PAUL GLEN is an IT management consultant in Los Angeles and the author of the award-winning book *Leading Geeks: How to Manage and Lead the People Who Deliver Technology* (Jossey-Bass Pfeiffer, 2003; *www.leadinggeeks.com*). He can be reached at **info@c2-consulting.com**.

Education. Lots of great business leaders have put in time in MBA programs, but even a degree from Harvard or the Kellogg School (my alma mater) doesn't guarantee the right stuff. While important, understanding the mechanics and subtleties of business doesn't necessarily translate into leadership success.

Tech smarts. As believers in meritocracy, we're drawn to the idea that the person who best understands what's going on technically is best qualified to be in charge. Unfortunately, the skills needed in a leadership role are different from technical savvy — and often don't reside in one person.

Bossiness. The natural desire to be in charge doesn't necessarily predict whether someone will be a good leader in a technical environment. The hierarchical top-down approach tends to be fragile when it comes to creative work. Those with the built-in desire to command frequently run smack into the brick wall of technical staff intelligence and intransigence.

So, which traits are better predictors of who will make great leaders?

Emotional flexibility. We talk a lot about being a good leader, but what about becoming one?

Great leaders start out somewhere else and have to move into leadership roles. Becoming a leader poses transitional challenges that can be met only with emotional flexibility. One of the great challenges for a new manager is to transform his view of himself, to change how he measures himself and his success. Early life and career work is judged by personal productivity. In school, we're judged by the quality and quantity of our papers, tests and quizzes. Young workers are judged by the quality, quantity and speed of task completion. Our self-images become tied to our personal productivity.

Moving into management requires a fundamental shift in how we view ourselves, a shift in the emotions about self and work. Leaders are judged not by their personal productivity but by their effect on the productivity, morale and effectiveness of others. Managers must be able to derive their personal satisfaction from helping others be productive rather than being productive themselves. This is a difficult transformation that's poorly understood and rarely discussed.

The ability to adopt a new self-image is critical to the transition into a successful leadership role.

Comfort with ambiguity. Beyond mastering their emotions, leaders must be able to cope with the chaos and confusion of reality. The world is a complex place filled with facts, provisional facts, lies, opinions and emotions. A large part of the leader's role is to help interpret the turmoil and bring order, sense and meaning to daily work. Successful leaders must transform ambiguity into clarity and create compelling narratives out of complexity.

They also bring a high tolerance for the continuing existence of confusion. They're able to hold contradictory ideas in their heads simultaneously without experiencing undue stress. Strong leaders aren't impervious to new facts and information but are comfortable revising their interpretations to meet changing times.

Ability to communicate. The ability to cope with ambiguity means nothing without the ability to communicate. If leaders and managers deliver value through their effect on others, communication is their primary tool. Whether leaders communicate verbally, in writing or through their actions, their ability to connect with those they lead is of prime importance.

Considering these "softer" skills can help you to ensure a successful future for your organization. **45727**

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Advertising Supplement

IT Careers: Education and Training

Most folks are working so hard that there's little time to think about adding any more to their schedule. However, adding learning and capabilities has long been the recipe for maintaining marketability among IT professionals.

That's changing somewhat as U.S. companies are looking for more than certifications du jour. They demand a more complex blend of skills. The result is surging enrollment for specific courses in undergraduate and graduate degree programs. It also has meant a boon to companies such as eCollege,

which provides online education resources for post-secondary institutions and businesses. The company estimates that enrollments using its eLearning capability will total 1.2 million in 2004 including close to half a million distance enrollments.

Ken Sardoni, college campus chairman for technology programs at the Utah campus of the University of Phoenix, says the important consideration is to pursue additional skills and learning that can't be sent offshore. The detail skills – coding and implementation – can.

"We encourage students to look at six technical areas in general – networking, database development and analysis, programming, web design and business systems analysis," says Sardoni, who worked for 13 years at Oracle before going into education. "When you find a piece of technology you like, such as database or networking, then you go deeper. And you need to understand the business processes so that you can apply technology point to point through the whole value chain of a business. That's something that cannot be outsourced."

University of Phoenix, which now enrolls more than 200,000 degree-seeking students through a combination of classroom and distance learning capabilities, has seen the most demand for IT professionals who have business acumen in health care, biosciences, insurance and financial services. "The other (category), interestingly, is in education. The development of online classes, simulations, classroom augmentation and even publishing of materials rests on information technology. In July (2003) we had more than 600,000 downloads from our electronic library to support student research. Technology is allowing us to move into smaller markets with a blend of campus and online instruction, reaching people who have not been reached before."

Laurie Jadick, vice president of human resources for IT services company Cognizant, said companies must change too, providing a more creative venue for learning and timing of that learning. "People will give up personal time for learning when they see that it is relevant," she says. Jadick also points to the need for interaction during learning, not just electronic learning. "We all need that energy level and interaction to get a bigger bang for the buck."

Jadick evaluates learning style as part of hiring criteria. "We want people who learn in an aggressive manner – who pull their chair up next to smart people and learn from them. We ask people not just what they know, but how they learned it."

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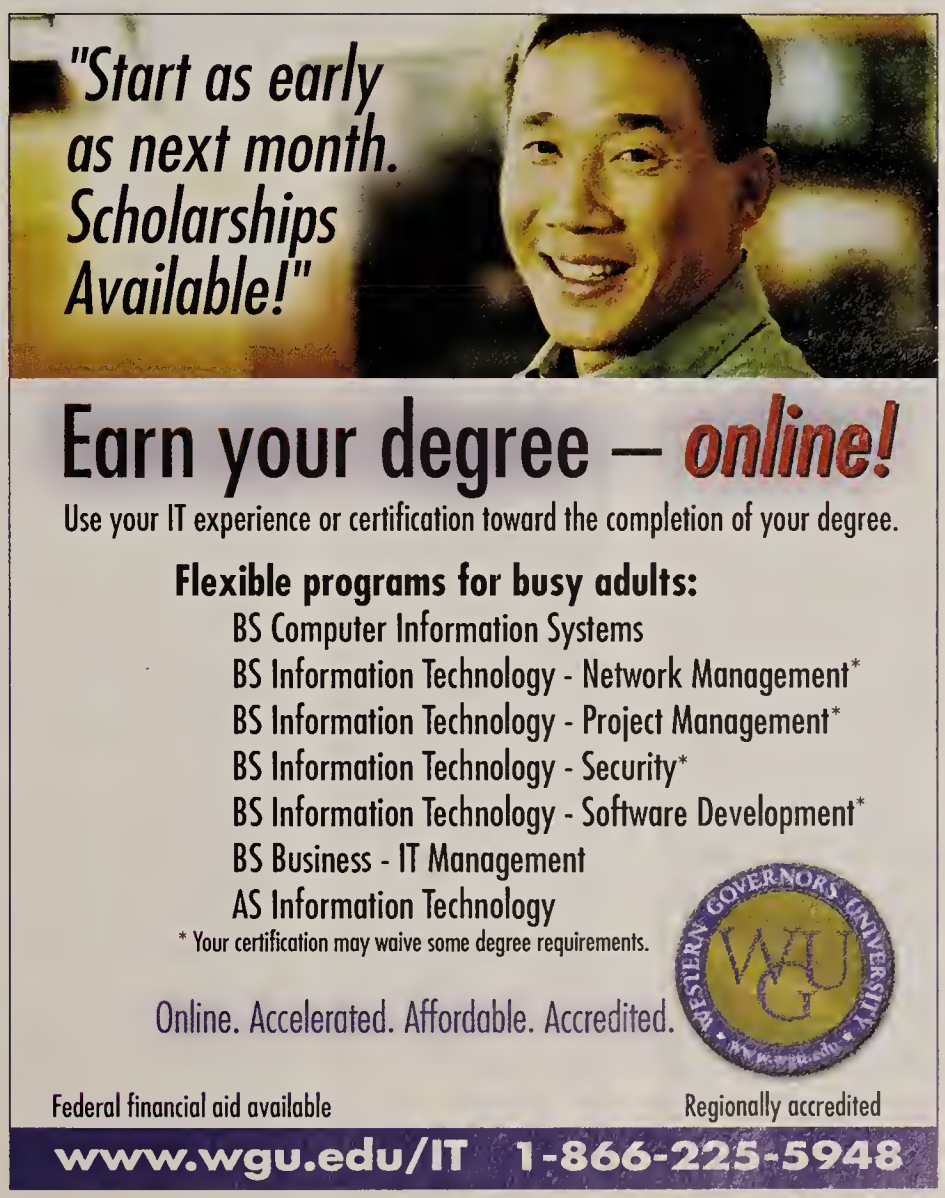

IT PROFESSIONALS

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Positions opening for (a) IT Instructor who must have M.S in C.S & 3 yrs exp in teaching instructor ied courses and imparting technical training in Sun technoiogies like Architecture of J2EE Appiications, JAVA, Serviets, EJB, JSP, Point base, XML and Object Oriented programming. b) Senior Systems Engineer who must have B.S in Computer Information Systems or equiv & 5 yrs experience in File NET Products Installation, advanced System Support and Administration including Panagon IS, CS, Report Manager, eProcess and Client products like Capture and iDM with Web services. Should have hardware maintenance experience on File Net Jukeboxes, knowledge of Kofax product support will be required. Please send resumes oniy to President, Guru Software Services, Inc., 12700 Century Drive, STE# B, Alpharetta, GA 30004. identifyIng interested position(s). EOE

Computers - Software Developers needed. Seeking qual. candidetes possessing BS or equiv. & rei. work exp. Part of the req. rel. exp. must include 1 yr. working with J2EE, Weblogic & Websphere Application Servers. Exp designing complex web based systems w/complex server side framework & the mortgage process preferred. Fwd resume & ref. to Pelisades Technology Partners, Attn: HR, 440 Sylvan Ave., #210, Englewood Cliffs, NJ 07632

Software Engineers needed. Seeking candidates possessing BS or equivalent end/or relevant work experience. Part of the req. rel. work exp. must include 2 years working with Oracle and HTML or 2 years working with Oracle end JBOSS. Duties include: Analyze, design, develop, enhance, and maintain applications; Plan, test end document programs. Work with Java, J2EE, Weblogic, JBOSS, JSP, Oracle and HTML. Mail resume, references end salary requirements to: Prudent Technologies, Inc., 8413 W 145th Terrace, Overland Park, KS 66223.

Computers-Seeking qualified candidates for senior and mid-level IT professional positions including: Programmer Analysts, Software Engineers, Network Administrators, Systems Analysts. Qualified candidates must possess MS/BS or equiv. and/or rel. work exp. Duties include: Work with 3 of the following: SAP, ABAP, XML, Siebel, Oracle, C, C++, PL/SQL, peopleSoft, Unix. Fwd resume & references to: Halcyon Solutions Inc., Attn: HR, 950 Taylor Station Rd., #D, Columbus, OH 43230.

Research Computer Services is seeking Software Engineers for various locations throughout the U.S. Current positions available in our Dayton, OH & Atlanta, GA offices. MS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 1 yr working w/ C/C++. Duties include: Design & develop application software; interface w/ customers & vendors; Troubleshoot & provide product support, analysis, & resolution. Work w/ C/C++, .NET, & XML. Send res., ref., & sal. req. to resumes@daytonrcs.com or fax to 937-445-5011. Please mention Job Code #DAY797 for Dayton or #ATL798 for Atlanta position.

Lead Developer - Boca Raton, FL. Design & develop packaged & system software. Propose & implement software enhancements to meet production schedule. Analyze, develop & implement algorithms. Test & solve technical issues. Must have BS/BA or foreign degree equiv in Computer Science, 2-yr exp in job or 2-yr exp. as Developer. Must have exp. in VC++, SQL, C++, IIS, ASP, DMO, ADO, HTML, DCOM, MTS, ATL, Windows NT & UNIX. F/T 40/wk, 9am-5pm M-F. Comp. $60K/yr. Resumes to: HR, Software FX, Inc. 5200 Town Center Circle, Tower 1 - #450, Boca Raton, FL 33486.

Instructor, Technical Training - wanted by technical train. & consulting co. in Plantation, FL to dev. course curriculum & provide instruction to Programming students in Visual C++, Microsoft .NET, Visual Basic, Compact framework & WinCE .NET. 4 yrs exp. req'd as instructor in listed skills. Send resume only to HR - Technical Training Instructor, 8211 W. Broward Blvd., Suite 210, Plantation, FL 33324.

Synergy has multiple openings for IT professionals. Qualified applicants must have BS with substantial experience. Strong background in SAP, SQL, ERP, VB, TCP/IP Suite, Oracle is plus. Send resumes to hr@synergy-com.com. Travel is required for some positions. Sponsor GC. EOE. No calls.

Golden Way Security is hiring IT professionals to handle software and computer issues in mortgage areas including web-based application design. BS with some experience are the minimum requirement. Please send resumes to 28125 W. Seven Mile Rd., Livonia, MI 42152. EOE.

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Sr. Software Developer: Design and develop client/server and web-based applications in open environment including designing and developing GUI and database, performance systems analysis and designing and developing and testing and installing custom software systems. Analyze and design business processes through data modeling end process modeling. Requires: Bachelors degree in Computer Science and five years experience in Software Development. Demonstrated ebility in C/C ++, Visual Basic, MFC, SQL, OLE, COM/DCOM, HTML/DHTML, XML, ASP and VB Script. 40hrs/wk (9:00 a.m. to 5:00 p.m.) $92,000.00/yr. Send two resumes/responses to: Case Number 200203744, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Global Tek, Inc. has opportunities in Naperville, IL; Madison, WI & Fairfield, NJ areas for experienced Computer Professionals (multiple openings), w/relevant education & experience in VB Script, Perl, Erwin, C, C++, VC++, IPlanet, ASP, HTML, DHTML, Java Script, Sybase, Oracle, SQL Server, SQL, T-SQL, MS Access, Business Objects, Crystal Reports, DB2, Windows NT, CEML, Linux, IIS, UNIX, PL/SQL, Cognos, Brio, ODBC Connectivity, Netscape Enterprise Server. Application Server of Cold Fusion, Data Modeling, Informatica, ETL application, e-business intelligence, Data-warehousing, SAS, ERP, CRM, RDBMS-Oracle, GUI Tools, ASP, J2EE, JSP, JDBC, Jave script, EJB, Weblogic, ASR/TTS, CTI. 40% travel to client sites reqd. Send resumes to: Global Tek, Inc., 277 Fairfield Rd., Suite 108 A, Fairfield, NJ 07004.

Programmer Analyst. Analyze reqmts, recommend dsgn, perform data mapping, prgmg, dvlpmt & testing using Oracle Reports 6i, Oracle Forms 6i, SQL, PL/SQL, SQL*Loader, Toad, Taviz Integration Adapter & Windows. Bachelors or equiv in Comp Sci/Engg, Info Systems, Electrical, Electronics or related Engg. 1 yr exp in job offd or as IT/software prof'l using above computer skills. 40hr/wk 8a-5p. Resume to: Ultra Telecom, Inc, 1600 Oakbrook Dr, Ste 520, Norcross, GA 30092.

Programmers & Software Engineers: Design/Develop Server side/GUI/web enabled apps. in Microsoft.Net/related tools suite, Java suite, SQL Server/Oracle, Coldfusion, COBOL, Data Dictionary/ Data Diagram, AS400 & rel. tools. Attn: HR, 6962 Main St., Suite 105, Woodstock, GA 30188.

Programmers & Software Engineers (Chicago, IL & Atlanta, GA): Analyze, design, develop, test & implement specialized epps. In (e) WebMethods Oracle Apps 11i, Siebel, JD Edwerds, Clarify & rel. tools; (b) HIPAA, Telecom, Banking Apps. in Mainframe / Oracle, Java, SQL Server and rel. tech.; (c) Ariba Buyer / ORMS, SAP, JD Edwards, Mainframe / Mid-Range, Java Suite & rel. tools; (d) Java Suite, Rational Rose, MQ Series, WebLogic, Jakarta Digester, UNIX Scripts, WebSphere, DB2, LDAP Server & rel. tools. on Windows / Unix / Sun Solaris. Send resume to, HR, 906 Lacey Ave., Suite # 200, Lisle, IL 60536. EOE.

Software Engineers needed. Waltham, MA based company has postions available for qualified candidates possessing MS or equivalent with relevant work experience. Duties include: Design, develop, implement and customize software applications for various business clients using 3 of the followlng: Sun Solaris, Weblogic, Unix, C, C++, VB, VC++, Java, .NET, EJB, ASP, Crystal Reports, WinRunner, Business Objects, Lotus Notes, IBM Websphere, Javaservlets, Perl, Corba, HTML/XSL/XML, DHTML, COM/DCOM, PL/SQL & Oracle/Sybase databases. Mail resume to Iconsoft Inc. 751 Main Street Suite 9 Waltham, MA 02451.

Innovision Technology is looking for system analysts and software/project engineers. Minimum BS/MS with experience using Rational ClearCase/ClearQuest Multisite and PVCS. Exp. in TI OMAP, TI TMS470 preferred. Please send resumes to itl@innovisiontech.com. EOE. No calls.

Enduenet is a company specialized in developing medical record software. It is looking for IT professionals with experience in this field. Qualified applicants must have BS/MS equivalent with skills in VB, C++, VC++, and OOAD. Please send resumes to contact@enduenet.com. EOE.

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Software Engineer (Mobile Switch Interfaces) sought to perform s/w prod design, sys analysis, & programming activities; write functional & design specs, prep prod sub-sys tech docs, conduct unit testing & integration testing for new functionality & participate in prod design mtgs w/ sr team members; perf s/w defect verification, release testing, & beta supp for prods. Bach in CS, EE, or related req'd + 2 yrs exp in SS7 for SCP. Forward 2 resumes to Lightbridge, Inc. 320 Interlocken Pkwy, Broomfield, CO 80021, Attn: Pat Jensen. Job # 1465.0041

System Analyst. Perform computer system analysis & programming to meet client's requirements; develop interface using ASP & VBCOM; use Unix components including C++ objects & Java classes with a Tomcat web server. IBM MQ on Unix is used communicate with backend systems using IBM MQ on Unix; design & develop COM objects for validation for EAS; provide authentication & security control. Req: Bachelor or equ. (accept 3-yr college+PG diploma or 2-yr exp as equ), 1-yr exp es Programmer or Analyst or IT Consultant. 40hrs/wk, 8-5pm, $47k/yr. Send resume to Job Order # 2004-324, PO Box 989, Concord, NH 03302-0989.

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Software Development Engineer - Design and develop software for serial bus testing instrument for MIL-STD-1553B and RS-232C systems. Design and develop enhancements for automated test equipment operating environment software that integrates a number of other application development environments. Use object-oriented design skills, C++ for coding, knowledge of MIL-STD 1553B and TIA/EIA-232C bus protocols, VX1plug&play specifications end experience in XML DOM/SAX, Microsoft ATL/COM, Microsoft VisualStudio development environment, national instruments measurement studio LabView, TestStand, and Agilent VeePro and TYX PAWS. Fix bugs and enhance products. Requirements include a Master's degree or equivalent in Computer Science, an Engineering discipline or related field. No work experience required. Applicants must have unrestricted authorization to work in the United States. Salary $75,177/year. 40 hours/wk. Respond with two copies of resume to Case #200203613, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Multiple positions in Atlanta for Programmer/Analysts to analyze, design, develop appls using C, JAVA with DB2, .NET, JavaScript, HTML/DHTML, EJB, ASP.NET, C#, JSP, ASP, Servlets, UML, Oracle, SQL Server, Sybase, Natural, 4GL, XSTL Web services, Remedy, ETL, Abinitio, Cognos, Informatica, Actuate, Mercury Suite, Rational Test Suite, Tibco, Clear Quest, Tapestry, Resign. Perform initial study of req and provide feedback; provide on site maintenance support, debug modify fine tune and perform code optimization. Require: BS or Equiv. in Engineering & 2 years relevant experience. Multiple positions in Atlanta for Business Development Managers with an MBA and 3 years of experience in Sales, Recruiting, Contract Approval, Deviation Approval, Technical Feasibility, Financial Viability, Delivery Viability, Infrastructure and Resource viability. Frequent Travel and relocation involved for both positions. Mail Resumes with cover letter & position applied for to H R Manager, FutureTech Consultants LLC, 330 Research Court, Suite 300, Norcross, GA 30092.

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Design and code a solution that integrates the client's information systems using programming languages on UNISYS platform, J2EE, Oracle, Unisys A Series, Mainframe environment, Unix/Windows operating system end Lawson ERP system. Require experience in preparing functional requirements, design specifications & generating reports.

Seeking dependable and Total Quality customer service oriented candidates for the positions. Require Bachelor's degree in Computer Science, Engineering or related field with 2 yrs of experience in the job offered. Job involves frequent traveling as required by the project.

We offer excellent salary & benefits package for 40 hrs/wk, 8:00 to 5:00 p.m. Send resume to: iGenesis, LLC, 942 Parkton Dr, Waukesha WI - 53189 or job41923@igenesisonline.com

Computer Programmer wanted to convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language and conduct quality check and related duties. BS in CS or related major and one year related experience required. Send resume to Gale Finance, Human Resources, 1507 E. 53rd St., Suite #239, Chicago, IL 60615. No walk-in.

Application Developers. DMS & auto products using Vis Interdev, VB, VC++, SQL Server 2000 & ASP/IIS 5.0. BS CS or Engg. & 2 yrs programmer, dev. or analyst. Resumes to: K. Cramer, Reynolds & Reynolds, POB 2608, Dayton OH 45401

Programmer Analyst w/exp to analyze, design, develop, test & implement web oriented & custom built applications using J2EE Technologies, HTML, Jave Script, JSP, ASP, Oracle, Sybase, ClearCase & CVS. Perform code impact analysis/reviews for functional performance, capture & publish performance status for the code changes to improve the system performance to meet production standards using custom built test bed on Unix Platforms. Mail resumes to: Open Systems Technologies, Inc., 119 East 20th Street, Suite 202, Houston, TX 77008. No in person resumes/interviews; only respond by mail.

Title: Latin America Dealer Sales Manager

Summary of Responsibilities: Perform a number of duties with very limited support. Must have a good understanding of all facets of the company's business and the tech industry. Responsible for developing and supporting all areas of dealer network in Latin America and Caribbean territories. Managing relationships that don't always have similar goals. Extensive travel to support the channel with sales activities and the management of other businesses. Will serve as liaison between the company and the channel with the knowledge and ability to educate the company as well as develop the Latin American and Caribbean territories. Also responsible for creating and executing a business plan that grows the company's market presence while increasing revenue, profitability and maintaining customer satisfaction. Position based in Boca Raton, FL.

Requirements: Rqrs Bachelor's degree in Business Administration or related or equivalent. Also rqrs 5 yers exp with software manufacturing. Requires a solid understanding of the high tech industry; a good understanding of the cultures & business environments in the Latin America and Caribbean; must be self starter with the ability to develop creative solutions to support inexperienced dealer channel with limited resources and support; must have the ability to motivete people; must have dealer management experience; must have Time and Labor experience; and must be able to speak, read, and write English, Spenish, and Portuguese. Required to travel up to 60% of the time in Latin America, Caribbean, and US.

Please submit your resume and salary requirements to: Thomas Bartiromo, at corporateemp@-kronos.com or Kronos, Inc., 297 Billerica Road, Chelmsford, MA 01824. Applicants must have proof of legal authority to work in US.

Systems Analysts (GA) Develop program specifications based on broad-level designs. Develop & analyze program specifications based on desired functionality. Code, test, debug & troubleshoot a variety of products in client server environments using AS/400, OS/400, RPGIV/ILE, SQL/400, CL/400, DB2/400, JSP, JAVA AND C, or COBOL. Perform change & impact analysis, BS/MS in Comp Science, any Engg or related field & relevant experience required. Send resume to Vivian Fernandes at MBT International, Inc., 400 Perimeter Center Terrace, NE, Ste. 900, Atlanta, GA 39346.

IT PROFESSIONALS:

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Position: Senior Consultant (Glen Mills, Pennsylvania and other locations through the U.S.). Responsible for the design and implementation of leading business application software to provide business solutions for clients in a wide range of industries. Engage in the design and implementation of CRM (Customer Relationship Management) systems utilizing Siebel end Enterprise Resource Planning solutions utilizing SAP R/3. Responsible for the design, development, customization, and implementation of epplications using Siebel enterprise application products and tools such as Siebel Sales Enterprise, as well as Siebel EIM (Enterprise Integration Manager) and Siebel Enterprise Application Integration. Involved in integration projects using Siebel Enterprise Application Integration and Siebel tools. Responsible for planning and scoping and defining functional requirements using SAP R/3. Responsible for customizing Production Planning (PP), Batch Management (BM) and Quality Management (QM) modules for implementation using SAP R/3.

The wage offered is $91,971 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Math, Engineering (any), Information Systems or Business Administration + 5 years of experience in the job offered or 5 years of experience as a Senior Consultant, Siebel Consultant/Team Lead, Engineer or Process Engineer. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials eveluation service. Related experience must include et least 1 year of experience in Customer Relationship Management (CRM), Siebel Sales Enterprise, Siebel EIM (Enterprise Integration Manager), SAP R/3 including PP (Production Planning), BM (Batch Management), and QM (Quality Management) modules.

Please send your resume, referencing Job Order Number **WEB-405169** to the: PA Careerlink, FLC Unit 235 W. Chelten Avenue, Philadelphia, PA 19144 EOE.

SYSTEMS ANALYST needed w/exp in Oracle, SQL Server, XML, Visio, Erwin & Crystal Reports. Design, develop & code the conversion process between database applic. using PL/SQL & DW technologies. Send resumes to: Empower Technology Solutions Inc., 120 Quarry Dr., 2nd fl., Milford, MA 01757. No in person interviews/resumes; only respond by mail.

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Applications Engineer (Fort Worth, TX) - Plan, design & develop software applications to support company's technical architecture of systems & related products for company's Sales Force Automation Systems, Reporting Systems, Intranet Portal & Database applications. Req. Master's Degree in computer science or related field and 2 yrs.' exp. in the job offered or 2 yrs.' info. tech. exp. [In lieu of Master's Degree will accept Bachelor's degree in computer science & addt'l 3 yrs. of info. tech. exp.] Stated 2 yrs.' exp. must involve: design & develop. of Java applications utilizing Swing; web-based applications utilizing JSP, Ant, & Struts on Oracle 9i AS; Oracle 9i & Sybase SQL Anywhere databases; JMS & Sonic MQ asynchronous messaging systems; & source control utilizing Rational ClearCase & ClearQuest. Apply with resume to: Attn: Recruiting-AE at Galderma Laboratories, L.P., 14501 North Freeway, Fort Worth, TX 76177.

Decru, Inc. is seeking a Security Appliance Software Project Engineer for Redwood City, CA. Candidate will direct and supervise team of software engineers designing, developing and implementing software solutions for security application devices used to encrypt data in real time for input and output of data storage devices. Will direct team using IAR Embedded Workbench for AT90S, Atmel AVR studio and Atmel Smart Card ICS software tools to write required firmware for Atmel Micro-controller chips and device drivers for security encryption circuit board based of these chips and other FPGA chips. Will direct software engineers in development of distributed transactional clustered databases. Will continue being responsible for designing and validating of secure clustering policies. Will direct and supervise above to meet National Institute of Standards (NIST) FIPS 140-2 security guidelines. Please email resumes to talent@decru.com.

Systems Analyst - Digital Intelligence Systems Corporation, located in Chantilly, VA, is looking for professionals to analyze user requirements, procedures and problems to automate processing or to improve existing computer system, among other duties. Reqs: Bachelor's degree in Comp Sci, MIS, Engg, Math or Tech or foreign equiv. w/ 2 yrs exp in related occupations of Programmer, Programmer Analyst, Systems Analyst, Consultant, Software Engineer or IT Manager. Exp must include SAP system configuration, ABAP/4, MBS-NAVISION and Oracle. Employer deems 3 years of undergraduate study plus 3 years of experience in the computer field as meeting degree requirement. Must be willing to travel to client sites throughout U.S. We offer competitive salaries & benefits. Please fax resume to Cyndi at (703) 802-0798.

Multiple positions available for computer professionals including Soft. Eng.'s, P/A's, Systems Analysts, Network Analysts, Systems Admin.'s, DBA's, SW, Website & .NET Developers, etc. Locations vary. Openings now w/leader in the field including TEKsystems, Aerotek, and Allegis Group. Req.'s degree (Bach. MS, or equiv.) in relevant field. Travel/frequent relocation possible. E.O.E. Competitive salary & benefits. Resume to: J. Brigham, Allegis Group, HR; 7301 Parkway Drive, Hanover, MD 21076. ID Job No. 04-01-2004.

Programmer Analyst to analyze and evaluate existing or proposed systems, and revises computer programs, systems and related procedures to process data. Prepares charts and diagrams to assist in problem analysis, and submits recommendations for solution. Prepares program specifications and diagrams, and develops coding logic flowcharts. Encodes, tests, debugs, and installs the operating programs. Bachelor's degree, computer Science, Eng. or Information Systems and 2 yrs. Exp.

Software Engineer to provide functional and empirical analysis related to the design, development and implementation of software operating systems for the company's products, including, but not limited to, utility software, development software, and diagnostic software. Participates in the development of test strategies, devices and systems. Masters Degree in Comp. Sci or Eng and 3 years exp. or Bachelors Degree and Five years experience.

Send Resume to ACS International Resources, Inc. Attn: HR Director, 5 Innovation Way, Newark, DE 19711.

BEA Systems, Inc. has opportunities available for the following positions (various levels/types) at locations throughout US, including CA (San Jose & San Francisco); CO (Boulder & Denver); WA (Seattle & Kirkland); MA (Burlington); and NJ (Liberty Corner):

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Please reference CW42004 when you apply. Send resume to BEA Systems, Inc., Attn: HR-Staffing, 2315 North First Street, San Jose, CA 95131. Fax: (408) 570-8958. E-mail: Refer to career section of www.bea.com. Principals only. EOE.

Programmer/Analyst to design, develop, test, implement, maintain and support web-based software in a client/server environment using Object Oriented Methodologies, Java, HTML, XML, JSP, Visual Basic, Oracle, RMI and various applications servers on Unix, Sun Solaris and Windows Platforms. Require: BS Degree in Science/Engineering or a closely related field with 2 years of progressively responsible experience in the Job offered or in the related occupation of Software Engineer. Extensive travel on assignments to various client sites within the US is required. Competitive Salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers, Inc., 875 Old Roswell Lakes Road, Suite E 400, Roswell, GA 30076. Attn: Job: GV.

Charter Global, Inc. has openings for Programmers, Software Consultants, Programmer Analysts, DBA's, Systems Analysts, Software Engineers and Engineering Programmers Bachelor's or Master's degree (or foreign equiv) plus 1 - 2 yrs exp req'd depending upon position. For some positions, we also accept degree equiv. in educ. & experience. Travel and/or relocation required. Send resume & salary req. to Charter Global, Inc, HR 5445 Triangle Parkway, Ste 190, Norcross, GA 30092.

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Sr. Applications Developer (Omaha, NE) - Partner w/bus analysts in identifying bus needs & tech req's. Dvlp, implement & maintain Oracle based application financial bus info. sys using Oracle Applications Suite (Oracle E-Bus Suite), Oracle database & its tools Dvlpr 2000 for Forms & Reports, Pro*C, SQL & UNIX shell scripting. Eval & design integrated solutions for complex applications & collaborate w/multiple IT groups & bus units. Compose sys design components to meet req specs & code & maintain customized modules. Mentor & assist entry-level dvlprs. Req's: Bachelor's degree, or equiv, in Comp Sci, Math, Eng, MIS or related & 2 yrs exp in job offered or as an Applications Dvlpr &/or Software Analyst &/or Sys Analyst &/or Sr/Prog Analyst &/or Sr/Software Eng &/or Consultant, incl working w/Oracle Applications Suite (Oracle E-Bus Suite), Oracle database, Dvlpr 2000 (Forms & Reports), Pro*C, SQL & UNIX shell scripting. M-F, 9a,-5pm, 40hrs/wk, $71K/yr. Send resume to: Nebraska Workforce Dvlpmt, Attn: Madhavi Bhadbhade, PO Box 94600, Lincoln, NE 68509. Refer to Job Order #TREL5-VTT3P-91611.

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ACCENTURE LTD. 12, 31, 38, 37, 46
ADVANCED MICRO DEVICES INC. 1
AETNA INC 31
AFFILIATED COMPUTER SERVICES INC. 8
ALLSERVE SYSTEMS CORP. 6
ALORICA INC 37
AMAZON COM INC. 19
AMERICAN INTERNATIONAL GROUP INC. 34
AMERICAN NATIONAL STANDARDS INSTITUTE 8
AMR RESEARCH INC 34, 45
ANSWERTHINK INC. 34
ANTA SYSTEMS INC. 30
APACHE SOFTWARE FOUNDATION 14
APPLE COMPUTER INC 7
ARCSIGHT INC. 28
ARGONNE NATIONAL LABORATORY 22
AT&T WIRELESS SERVICES INC 14
AVAILITY LLC 31
AVAKI INC 22
BAXTER INTERNATIONAL INC. 16, 31, 33
BEST BUY CO 12
BIZ360 INC 19, 20
BJ'S WHOLESALE CLUB INC. 16
BLACKWELL CONSULTING SERVICES INC. 31
BLUE CROSS AND BLUE SHIELD OF FLORIDA INC. 31
BMC SOFTWARE INC 10
BROWN RAYSMAN MILLSTEIN FELDER & STEINER LLP 15
BT SMITH AND ASSOCIATES 7
BURSON MARSTELLER 20, 34
CAMPBELL SOUP CO 1
CANDLE CORP 6
CANON USA INC. 1, 34
CAP GEMINI ERNST & YOUNG 45
CAPTARIS INC 6
CATALINA MARKETING CORP 13
CENZIC INC. 12
CERN 22
CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS 31
CIGNA CORP 31
CINCINNATI FINANCIAL CORP. 34
CISCO SYSTEMS INC. 12, 36
COGNIZANT TECHNOLOGY SOLUTIONS CORP 11
COLORADO STATE UNIVERSITY 26
COMMISSION ON PROFESSIONALS IN SCIENCE AND TECHNOLOGY 1
COMPUTER SCIENCES CORP. 12
CONVERGYS CORP 36
CONVERSEON INC 20
COPPEREYE LTD 8
CORE CAPITAL PARTNERS 8
D.H. BROWN ASSOCIATES INC. 7
DALHOUSIE UNIVERSITY 28
DATAMIRROR CORP 30
DELL INC 8, 12
DELPHI CORP 34
DELTA CORPORATE SERVICES INC. 11
DICE INC 36
DIGERATI SOLUTIONS LLC 11
DOW JONES & CO. 19
DREYFUS SERVICE CORP 13
DUPONT CO. 34
DURHAM POLICE DEPARTMENT 27
EBAY INC. 19
ECONOMIC POLICY INSTITUTE 1
EMACHINES INC. 37
EPINIONS INC. 19
EXTENSIS INC 30
FACTIVA 19, 20
FBI 31
FIRST INTERNET INC. 10
FLUOR CORP 36
FORRESTER RESEARCH INC. 1, 10, 11, 22, 36
FORTIFY SOFTWARE INC. 12
FUJITSU CONSULTING 11
GAP INC. 34
GARTNER INC. 1, 14, 31, 32, 34
GATEWAY INC. 8, 37
GE MEDICAL SYSTEMS 31
GE REAL ESTATE 11
GENENTECH INC. 37
GENERAL REINSURANCE SERVICES CORP. 1
GEORGE WASHINGTON UNIVERSITY 18
GLOBAL HEALTHCARE EXCHANGE LLC 31
GLOBAL INSIGHT INC. 1, 46
GLOBUS ALLIANCE 22
GLUECODE SOFTWARE 14
GOOGLE INC. 19, 20, 26
GUS PLC 34
HARLEY-DAVIDSON INC. 19
HARVARD BUSINESS SCHOOL 37
HEALTHCARE FINANCIAL MANAGEMENT ASSOCIATION 34
HEWLETT-PACKARD CO 36
HOOVER'S INC. 7
HUDSON'S BAY CO. 6
HUMANA INC. 18, 31
IBM 1, 7, 8, 10, 14, 15, 19, 28, 36
IBM GLOBAL SERVICES 12
IDC 1, 7, 8, 16, 19
INDIANA UNIVERSITY 26
INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA 1, 46
INOVANT LLC 16
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS INC. 1
INTEL CORP 12
INTENSE SCHOOL INC. 36
INTERGRAPH CORP 12
INTERNATIONAL FEDERATION OF THE PHONOGRAPHIC INDUSTRY 10
J.D. EDWARDS & CO 7
J.P. MORGAN CHASE & CO 36
JASOMI NETWORKS INC 30
JOHNSON & JOHNSON 31
JUNIPER NETWORKS INC. 31, 33
JUPITER RESEARCH 17
KAVADO INC 12
KELLOGG SCHOOL OF MANAGEMENT 37
KEYSPAN CORP 13
KIMBERLY-CLARK CORP. 1
KIRKLAND & ELLIS LLP 15
LIBERTY MUTUAL INSURANCE CORP. 34
LOGITECH INC. 30
MAPICS INC. 7
MARRIOTT INTERNATIONAL INC. 36
MARTHA STEWART LIVING OMNIMEDIA INC. 19
MASTERCARD INTERNATIONAL INC. 16
MCDONALD'S CORP. 8, 20
MEDTRONIC INC. 31
MERRILL LYNCH & CO. 34
META GROUP INC. 1
MICROSOFT CORP. 1, 6, 7, 8, 17, 27, 30, 36
MINNESOTA LIFE INSURANCE CO. 34
MIT 37
MITSUBISHI CORP. 34
NATIONAL ASSOCIATION OF SOFTWARE AND SERVICE COMPANIES 11
NATIONAL RETAIL FEDERATION 12
NEOIT INC. 11
NETSCREEN TECHNOLOGIES INC. 31
NIKE INC. 20
NORTH BRONX HEALTHCARE NETWORK 1
OAKWOOD HEALTHCARE SYSTEM 7
ORACLE CORP. 22, 30, 31
PACIFIC LIFE CORP 34
PACIFICARE HEALTH SYSTEMS INC 19
PAYPAL INC. 12
PEOPLE3 INC. 31
PFIZER GLOBAL RESEARCH & DEVELOPMENT 22
PFIZER INC. 45
PGA TOUR INC. 11
PHILIPS ELECTRONICS NV 34
PIVX SOLUTIONS LLC 27
POINTBASE INC. 30
PRICEWATERHOUSECOOPERS 38
PROCTER & GAMBLE CO. 1
PROJECT MANAGEMENT SOLUTIONS INC. 37
RECORDING INDUSTRY ASSOCIATION OF AMERICA 10
REUTERS GROUP PLC 19
SANCTUM INC 12
SARA LEE COFFEE & TEA NORTH AMERICA 10
SAS INSTITUTE INC. 13
SCALIX CORP 8
SEAGATE TECHNOLOGY LLC 19
SEARS, ROEBUCK AND CO. 12
SHARP CORP. 34
SIERRA ATLANTIC INC. 8
SNAP APPLIANCE INC. 6
SPI DYNAMICS INC 12
STORAGE NETWORKING INDUSTRY ASSOCIATION 6
SUN MICROSYSTEMS INC 1, 19, 30
SYMBIO TECHNOLOGIES LLC 27
SYMPHONY SERVICES CORP. 8
TARGET CORP 12
TECH-ECONOMY.ORG 34
TECHTRONICS INDUSTRIES CO. 11
TEMPLE UNIVERSITY 32
TERRA NOVA TRADING LLC. 10
TESCO PLC 34
THE BURLINGTON NORTHERN AND SANTA FE RAILROAD CO 16, 33
THE CUSTOMER RESPECT GROUP INC. 34
THE DATA WAREHOUSING INSTITUTE. 13
THE HACKETT GROUP. 34
THE HILL SCHOOL. 6
THE HOME DEPOT INC. 7
THE SCO GROUP INC. 15
TIVOLI SOFTWARE 8
U.S. DEPARTMENT OF DEFENSE 16, 37
U.S. DEPARTMENT OF HOMELAND SECURITY 12
U.S. FOOD AND DRUG ADMINISTRATION 45
U.S. NAVY 7
UNISYS CORP 12
UNITED AIR LINES INC. 38
UNIVERSITY OF ARKANSAS 22
UNIVERSITY OF CALIFORNIA, BERKELEY 26
UNIVERSITY OF CALIFORNIA, DAVIS 14
UNIVERSITY OF WISCONSIN 10
VERINT SYSTEMS INC. 27
VERISIGN INC. 19
VISA INTERNATIONAL INC. 16
WAKEMED HEALTH NETWORKS 10
WAL-MART STORES INC. 1, 34, 45
WEBPLAN INC 6
WEBSENSE INC 10
WERNER CO. 7
WILLIAM BEAUMONT HOSPITAL 31
ZENO TECHNOLOGIES LTD 27

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www.enterasys.com
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www.f5.com
Finisar 9
www.finisar.com
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www.i2.com
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www.ibm.com
InterSystems Caché 18
www.intersystems.com
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microsoft.com/officeIT
Quantum DLTtape 23
www.dlttape.com
Storage Education Series 32/33
www.computerworld.com/services/whitepapers
Sybase 2-3
www.sybase.com
Veritas 21
www.veritas.com
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Continued from page 1

RFID

nology. And the compliance delays may not be the only ones Wal-Mart encounters as its leading suppliers strive to fully meet the RFID directives it set last year, predicted analysts at Forrester Research Inc., Gartner Inc. and five other market-research and consulting firms.

A Wal-Mart spokesman confirmed that the retailer is requiring its top 100 consumer goods suppliers to ensure 100% readability of the RFID tags that they're being asked to affix to all pallets and cases shipped to its three distribution centers in the Dallas/Fort Worth area by January. Forrester estimated that only 25% of the suppliers will be able to fully comply with the requirements on time.

Wal-Mart continues to maintain that the deadline is realistic. In a message posted last week on the company's RetailLink extranet site for suppliers, CIO Linda Dillman stated that Wal-Mart is "on track to have in excess of 100 suppliers tagging cases and pallets by January. . . . The response from our suppliers is exceeding our expectations and demonstrates how compelling RFID can be within one's own supply chain."

But at an RFID conference in Chicago, some of Wal-Mart's top-tier suppliers said that they are confronting technical hurdles in pilot projects and that they are struggling to find a return on investment, at least in the near term.

Tom Torre, associate director of business-to-business supply chain innovation at Procter & Gamble Co. in Cincinnati, said executives at P&G will work over the next four months to "understand what the value proposition is." He pointed to the ability to capture tag data from retailers as a key potential benefit, saying it could give P&G better insight about sales.

But Torre said the high cost of RFID tags is a problem. He noted that tags are nowhere near the 5 cent target set by Wal-Mart. Volume prices can range from 18 cents to 40 cents apiece, according to industry sources.

"You're not going to get ROI immediately," said Mark Engle, director of IT at Campbell Soup Co. in Camden, N.J. He added that Campbell views the incorporation of RFID technology as "tactical in nature" to meet the requirements of major customers like Wal-Mart.

Identity Crisis

Cost isn't the only challenge confronting suppliers. Engle said RFID technology currently comes up short on identifying tags affixed to cases that are on the inside of pallets.

P&G discovered through its pilot tests that RFID technology has trouble handling metals and liquids, according to Torre. Foil-wrapped packages of Cascade dish detergent present the toughest challenge because the foil repels RF signals transmitted by tag readers, he said. Liquid detergents also fall into the "RF-unfriendly" category because liquids absorb RF signals, he added.

Mike O'Shea, director of corporate AutoID/RFID strategies at Kimberly-Clark Corp. in Irving, Texas, said his company has found putting RFID tags on cases and pallets of baby wipes to be daunting because the wipes have the characteristics of "a wet brick."

Despite the problems, Kimberly-Clark eventually expects to realize a benefit from RFID. But O'Shea predicted that it will take three or four years before use of the technology in corporate supply chains reaches a "critical mass."

Gartner analyst Jeff Woods predicted that Wal-Mart will see partial compliance by January, but he doesn't think most of the top suppliers will be able to tag all their pallets and cases at 100% read rates. "That's not going to happen," he said. "Most people will support Wal-Mart in some way in 2005. But they're not going to support all commodities, and they're not going to jump through hoops for a business case that only benefits Wal-Mart."

But Gus Whitcomb, a spokesman for Wal-Mart, said only two of the top 100 suppliers have informed the company that meeting the January deadline will present a significant challenge. "It has nothing to do with RFID," he said. "It has to do with other internal events inside their companies."

Whitcomb added that an additional 37 companies that don't face the mandate have told Wal-Mart they're working to meet the deadline anyway.

He emphasized that Wal-Mart views the RFID initiative as a partnership with its suppliers. Suppliers that are having trouble meeting the deadlines are being urged to discuss their problems "early on" with Wal-Mart "so that we can see if we can work with them on a solution," Whitcomb said.

45928

Wal-Mart's RFID Deadlines

MARCH 31
Eighteen pharmaceutical suppliers were **due to start putting RFID tags** on shipping warehouse packs of Class II narcotics, but not all of them met the deadline.

JANUARY 2005
The retailer's **top 100 suppliers have been directed to put tags** on all pallets and cases going to three distribution centers in Texas, with 100% readability.

JANUARY 2006
The rest of Wal-Mart's suppliers **must start shipping all pallets and cases** with RFID tags.

Drug Companies Try to Make RFID Work

Wal-Mart's first RFID deadline applied to only a small subset of its suppliers: pharmaceutical companies that handle prescription drugs classified as Class II narcotics. But their experiences shed some light on the issues that users face as they try to incorporate the technology into their supply chains.

Jonathan Loretto, global technology lead for RFID at Cap Gemini Ernst & Young, noted that the U.S. Food and Drug Administration announced in February its plan for using RFID devices to track the distribution of prescription drugs [QuickLink 44911].

Pharmaceutical companies are still trying to sort out the best way to meet both the FDA and retail mandates, according to Loretto. "You can't just comply with Wal-Mart," he said.

Loretto said Cap Gemini is helping four pharmaceutical clients to meet their legal and commercial requirements while also fulfilling their business goals for RFID, "which is obviously to make a profit and get a return on investment."

He claimed that companies can expect a return within an 18-to-24-month time frame, but it won't come from simply implementing the tags, readers and IT infrastructure for RFID. It will require business process transformation in order for them to see reductions in labor and logistics costs, supply chain assets and out-of-stock items, Loretto said.

"RFID is just getting started," said Bryant Haskins, a spokesman for New York-based Pfizer Inc. "We think RFID offers a lot of opportunities, but there's still a lot of unanswered questions to work through."

Pfizer didn't have to comply with Wal-Mart's March 31 deadline because it doesn't ship Class II narcotics to the retailer, according to Haskins. But RFID has the potential to help pharmaceutical companies such as Pfizer curb counterfeiting by enabling them to track drugs through the supply chain, he said.

The FDA is calling for the widespread use of RFID technology by 2007. Pfizer has joined other major pharmaceutical companies in a program called Jump Start, which Accenture Ltd. forged to help drug makers get started with RFID projects.

"We are certainly supportive of the FDA's efforts, and we are moving ahead," said Haskins. "But we don't think it's going to be a quick and easy process."

Kara Romanow, an analyst at AMR Research Inc., said the pharmaceutical companies she's working with are making good progress on RFID, although most didn't meet the Wal-Mart deadline. "The technology is just not ready – 10% to 12% of tags dead on arrival, and 5% to 10% more dying en route to Wal-Mart," she explained. "These guys have an extra challenge in that the bottles are relatively small compared to large cases, and the FDA is very particular about labels, so they can't just cover anything on the bottle."

Wal-Mart spokesman Gus Whitcomb declined to disclose the number of pharmaceutical suppliers that failed to meet the March 31 deadline. Asked if there will be any consequences for them, he said, "Partners work together privately to solve issues."

– Carol Sliwa

AIRPORT RFID

Transportation security officials eye use of RFID tags on airline boarding passes:
QuickLink 45918

Delta Air Lines begins its second test of using RFID technology to track luggage:
QuickLink 45915
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BPA ABM RED TAG

FRANK HAYES ■ FRANKLY SPEAKING

ITAA's Job Dream

HERE'S A COMFORTING BEDTIME STORY: Offshoring won't just save companies money. It will also create jobs. And reduce inflation. And grow the economy. Those are the top-line conclusions of a new report from the Information Technology Association of America, the IT vendors' lobbying group (see story, page 1).

Just don't read very far past that top line — at least, not if you want to get any sleep tonight.

See, the report says those new jobs won't be IT jobs. And that reduced inflation will come in part from lower pay — "wage compression," as it's charmingly dubbed by the report's principal author, Global Insight Inc. chief economist Nariman Behravesh.

And that economic growth depends on the willingness of the foreign employees who get our offshored jobs to spend their paychecks on U.S.-made exports.

Don't take my word for it. It's all in the report, brought to you by the people who, just a few years ago, were saying that the U.S. desperately needed to increase its IT workforce. Yes, really. Since early 2000, the ITAA has predicted the creation of more than 4 million new U.S. IT jobs — 1.8 million of which would go begging because there just wouldn't be enough IT people to fill them.

How many new U.S. IT jobs have actually been created since 2000? According to the ITAA's own annual jobs report, maybe 400,000.

But wait — according to this new report, since the dot-com bubble burst in 2000, a total of 372,000 software and IT services jobs have been lost in the U.S. (Only 104,000 were lost to offshoring; the rest went because of the recession, productivity gains and an end to what the report calls "overhiring.")

The new report also predicts that "in the software and services area, the economy will create 516,000 jobs over the next five years in an environment with global sourcing but only 490,000 without it. Of these 516,000 new jobs, 272,000 will go offshore and 244,000 will remain onshore. Thus the U.S. IT workforce will continue to grow."

So, let's do the math: Without offshoring, the U.S. gets 490,000 new IT jobs in the next five years, a net increase since 2000 of 118,000 U.S. IT jobs. With offshoring, the U.S. gets 244,000 new IT jobs — a net loss since 2000 of 128,000 U.S. IT jobs. Some growth, eh?

Yes, there will be new jobs — in education, health services, transportation, utilities and construction, all areas where the work can't easily be shipped overseas. They just won't be jobs in IT.

At least that's what the ITAA's offshoring report says. Is it true? Well, remember that this report is driven by politics every bit as much as the ITAA's wildly optimistic job-growth estimates of a few years ago.

Back then, the ITAA was lobbying for more H-1B visas, and its jobs survey miraculously showed a spectacular increase in the number of U.S. IT job openings about to be created. Now the ITAA is lobbying against restrictions on offshoring. And, amazingly, its new report concludes that offshoring will do everything but whiten teeth and freshen breath.

So if you're a techie, you may be able to sleep a little easier. After all, you already know what you need to do in order to dodge the offshoring bullet: build up your business skills, increase your face time with users and generally become the kind of IT person whose job can't easily be shipped overseas.

And if you're an IT manager or CIO? Then it's not so easy. See, some people will take this report seriously. Like your best techies, who may decide to bail out of a shrinking IT job market. Or the brightest students, who may conclude that IT is a dead end and opt for business or law or medicine instead.

That could leave you with the loss of your best people and not enough new kids coming in to replace them — a staffing nightmare, courtesy of the ITAA's fumbled efforts to hype the benefits of offshoring.

Pleasant dreams. 45887

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

She's Baaaaaaaack!

This site's network is hit by the Netsky worm, which begins sending infected e-mails that appear to be from people in users' address books. "Apparently, some people hadn't cleaned out their address books for quite a while," says pilot fish. "One lady received an e-mail that said it was from a co-worker who had passed away a year before. The subject line was 'I'm back.' Needless to say, she was a bit startled."

SHARK TANK

Shhhh!

School district's IT shop wants to make sure computer students don't hack into the districtwide network, so the high school's computer labs are cut off from the rest of the network. Then the school gets a grant for a wireless LAN in its library. "Students and staff in the computer labs immediately conducted a candy fundraiser to purchase PC wireless cards and wireless hubs," reports non-IT pilot fish. "Students now have access to the entire school network. We just aren't mentioning this to IT."

Tape Solution

Laptops of traveling users at this company are set up for both dial-up and broadband connections, but everyone complains that the high-speed setup never works right. "I couldn't understand why, so I tested and retested until I stumbled across the problem," says pilot fish. "Users would connect to a high-speed line, then also try to connect through their dial-up modems. I retrained all my users, but the calls continued to come in – until I taped step-by-step instructions into their laptop bags."

First Priority

Security consultant pilot fish plugs his laptop into a government client's network to run his online demo. "In the first minute, my laptop security software registers attempted attacks by MS-Blaster, SQL Slammer and Nimda worms, all from local LAN addresses," fish says. "My sales guy asks the client whether he was aware of the 'unhealthy atmosphere' in his office, and if he'd like to see our solution. The client says, 'No, we don't have budget for that' – and that's the end of that!"

But It's There

This client stresses the importance of security – everything has to be behind the firewall, says consultant pilot fish whose company has just taken over the work. But when fish checks the firewall settings, he discovers that all traffic is passing through. "Seems the previous providers had a lot of trouble making everything talk, so they just opened the firewall up completely to reduce complaints," fish sighs. "But technically, they *did* have a firewall."

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